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Epidemiological Observations in the Halifax Epidemic*

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REPORTS of individual epidemics are apt to have little importance as epidemiological contributions unless certain features of the epidemic can be considered in terms of the general behavior of the disease being studied. Unusual opportunities were present in Halifax in the winter of 1940–1941 to study a simultaneous outbreak of *gravis* diphtheria, scarlet fever, and meningococcus meningitis. The common factors underlying this general increase in the prevalence of respiratory diseases were in large part the result of the impact of war on civilian life. Crowding and the rapid overturn of susceptibles in a population are well recognized as proper fuel for the flames of contagion. This is the inevitable result of mobilization and increased industrial activity. In such wartime conditions much can be learned concerning the dynamics of spread within the crowd and methods of control among civilians and troops.

Much of the material presented was taken from the records of the Dalhousie Public Health Clinic and the Halifax City Health Department. Considerable basic epidemiologic data had been collected by the late Dr. Allan MacLean, head of the Department of Preventive Medicine at the Dalhousie Medical School in Halifax. Dr. MacLean died in October, 1940, just after the start of the Halifax epidemics. Miss Jean Peabody who had assisted Dr. MacLean in his statistical studies gave invaluable assistance in gathering and analyzing data.

The Harvard group which worked in collaboration with the Halifax public health officials consisted of eleven persons of bacteriological, clinical, and epidemiological interests. It was headed by Professor J. Howard Mueller of Harvard who had visited Halifax early in the epidemic to collect strains of the *gravis* organisms for diphtheria toxin

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studies. Plans were laid for the larger expedition from Boston when word was received after Christmas that, not only had diphtheria started again to increase in prevalence after dropping off in mid-December, but that scarlet fever and meningitis had assumed epidemic proportions. It should be emphasized that the Harvard Group were in Halifax for only six weeks and the responsibility and credit for the control of epidemic spread and the reduction of mortality rests with the local and Provincial health officials and practitioners.

Before considering the epidemic diseases separately it will serve to bring them into focus by considering Halifax as a background before and after the onset of war, and the environmental factors present which influenced the spread of respiratory contagion.

The population of Halifax according to the Dominion Census of 1941 was 69,326. Even in normal times it has importance as the largest city and capital of a rather sparsely settled maritime province and as a year round open water harbor where large quantities of goods are shipped to and from European ports.

Medical services and hospital facilities in ordinary times may be regarded as adequate. There is a well organized system of clinics run in conjunction with the Dalhousie Medical School. A 45 bed contagious hospital is larger than necessary for the usual winter cases of diphtheria, scarlet fever, and other contagious diseases. Up to October 1, 1940, there was no full-time health commissioner, and campaigns for immunization against diphtheria and other diseases had not been stressed by public health officials. This was perhaps reflected in the rates for diphtheria in previous years which were higher (some 30 to 80 cases annually) than in communities where a larger percentage of children had received toxoid. Housing was sub-standard in certain sections of the city, notably along the waterfront. In 1938 some 300 buildings had been condemned as unsatisfactory domiciles but new building projects were not yet under way to replace these tenements. In fact, the housing situation in this city had never fully recovered from the disastrous effects of the explosion of 1917.[1]

As in the last war Halifax became in 1939 an important winter port for shipping war materials and troops. The civilian population increased under these needs and in addition there was a constantly shifting population of the military, naval, and air forces. Merchant sailors manning convoys from all over the world converged here in large numbers. Ample opportunities can be seen in such an environment for the introduction of infection and its rapid exchange.

After the epidemic had started a severe strain was put on local hospital and medical facilities. Two additional hospitals were opened up for the overflow from the contagious hospital and, in spite of its extra beds, at one time in the winter 73 patients were being taken care of in this 45 bed institution. At least one-fourth of the doctors with active practice were in uniform and, for the same reason, public health and bedside nurses were equally scarce. However, the reorganization of the health department with a full-time commissioner took place in time to allow for greater effect from public health activities. This was especially important in the coördination of military and civilian control measures.

In addition to the three epidemic diseases, diphtheria, scarlet fever, and meningitis, there were sharp epidemics of other respiratory diseases, notably influenza and measles, in the late fall and early winter. The influenza was mild and not followed to any extent by post-influenzal pneumonias and deaths. The diphtheria was the most interesting in that it is the first recorded extensive

outbreak due to the *gravis* strains on this side of the Atlantic. Also, diphtheria with its specific treatment, prevention, and gauge of susceptibility is a rich field for epidemiological study and deserves consideration in greater detail.

The incidence among civilians in the 12 months from July, 1940, to July, 1941, was 649 cases of diphtheria with 24 deaths, 605 cases of scarlet fever with no deaths, and 114 cases of meningococcus meningitis with 16 deaths. Among these meningitis cases were individuals from elsewhere in the province who were hospitalized in Halifax. The peaks of greatest incidence for diphtheria fell in November, and for scarlet fever in March, as is to be expected in these latitudes. Relatively little meningitis appeared until early in December. In contrast to diphtheria and scarlet fever there was very little indication of concentration of meningitis cases in any one area, and only one instance of multiple cases in a family was recorded.

Table 1 gives the three diseases by attack rates at different ages. The high incidence of diphtheria among civilians in older ages will be discussed more fully later. It is suggested that the decline in rate for diphtheria in the 10–14 year age group is a result of relatively complete immunization among these school children; at any rate a similar decline is not evident for scarlet fever, which is also abnormally predominant in the older ages. More differences in the behavior of meningitis as compared with scarlet fever and diphtheria are revealed in this table. The peak of incidence for meningitis is definitely in the preschool children, with a drop in adolescence followed by a rise in the adult years. This might be attributed to greater opportunities for exposure among adult male laborers who constituted the greater number of cases in these age groups. Females were definitely in the majority among adults in the other two diseases.

The scarlet fever was extensive but mild both among civilians and the armed forces. The characteristics of the scarlet fever were so similar to the diphtheria in selection by age, sex, secondary cases, occupations, and geographical distribution as to suggest that the same factors which helped to spread the diphtheria bacillus were operative on the hemolytic streptococcus. Cases

TABLE 1

Civilian Population Halifax 1940–1941
Diphtheria, Scarlet Fever, and Meningococcus Meningitis Cases
Attack Rate per 100,000 Population *

Age Groups	*Diphtheria*	*Scarlet Fever*	*Meningococcus Meningitis*
0– 4 years	1,300	1,225	575
5– 9	1,833	2,455	144
10–14	1,254	1,702	148
15–19	1,463	1,070	212
20–24	1,490	1,060	215
25–29	963	675	168
30–34	544	451	187
35–39	409	253	156
40–44	281	258	71
45–49	252	27	27
50–54	141	...	71
55–59	168	...	42
60+	138	35	35
Attack Rate at all ages	935	871	164

* Age specific attack rates based upon age distribution of population at census of 1931 and total population of 69,326 according to the Dominion Census of 1941.

NOTE: The Dominion Census figures are probably incomplete. Sugar ration cards issued place the population at over 100,000, which would give correspondingly lower rates at various ages for the three diseases.

TABLE 2

Halifax Diphtheria 1940–1941
Complications and Deaths Compared to Liverpool (Shone, et al., 1939)

	Liverpool			*Halifax*
	Mitis	*Intermedius*	*Gravis*	*Gravis*
Number of cases	783	571	749	649
Case Fatality Rate	2.43	10.70	6.58	3.69
% Laryngeal Diphtheria	8.7	0.9	0.9	3.6
% Tracheotomy	5.2	0.5	0.8	0.8
% Paralysis	2.8	15.8	12.3	2.8
% Myocarditis	3.7	14.5	10.9	8.5
% Hemorrhage	0.3	2.1	1.6	....
% Nasal (Severe Epistaxis)	...	...	...	11.0

of scarlet fever and other streptococcus infection combined with diphtheria were noted, but there was no constant association of streptococcus infection with the bull necks and other severe local pharyngeal lesions of diphtheria. Throat cultures on scarlet fever patients and contacts revealed a predominant strain classified as type 19 by the Lancefield precipitin method. This strain was easily recognizable but, because of weak agglutinins, was hard to classify as to serological type in the field by the Griffith method, although independent typings in Ottawa, Boston, and New York suggested that, had agglutinations alone been relied upon, this would have been called a type 17. This is not an indictment of the slide agglutination method of Griffith, but suggests one of those unusual strains with agglutinating and precipitating antigens belonging to different types as have been reported by Lancefield.[2] With a more easily typed epidemic strain and highly type-specific antiserum the method should prove helpful in separating out carriers of epidemic types from those carrying less dangerous Group A strains. This is particularly valuable in army and navy cantonments where one case of scarlet fever may otherwise tie up much of the complement of a ship or barracks.

Gravis diphtheria seems to have been an imported infection in Halifax. The first case suspected of being caused by this strain appeared in September, 1940. The patient was one of the crew of a Norwegian tanker. He was followed by more cases from Norwegian sailors off a whaling ship anchored next to this tanker in the Basin. Some of these men developed symptoms ashore in a Salvation Army Hostel but within 24 hours of leaving their ship. More cases followed rapidly from the waterfront area and it was soon apparent that Halifax was not only dealing with an unusual number of cases but that the clinical severity of these infections was greater than usual. The infecting organism was identified by fermentations and characteristic colony appearance on blood tellurite medium as the *gravis* strain.* A small outbreak at a summer camp two months before had been identified as caused by the *mitis* variety, which suggests that the later epidemic infection was imported from sources outside of Halifax. The fact that this was exclusively a *gravis* epidemic does not necessarily imply severe infection. Observations vary from the high mortality found in Leeds[4] and by German observers to a position somewhat more virulent than *mitis* and less severe than

* Mueller[3] has shown that the Halifax *gravis* strains are resistant to the inhibiting effect of small amounts of iron on toxin production. This ability to produce toxin in the presence of iron compounds in a concentration similar to that found in the local tissues of the pharynx may be associated with the rapid spread and relative severity of the diphtheria in Halifax.

diphtheria caused by the *intermediate* strains as revealed by Shone [5] in Liverpool. Table 2 shows a comparison of the Halifax cases with the series reported from Liverpool. The Halifax cases resemble *mitis* infection in the high incidence of laryngeal diphtheria and deaths were certainly fewer here than in most recorded outbreaks of *gravis* diphtheria. However, doctors in Halifax who were familiar with the clinical picture of diphtheria in that locality were in agreement that the disease in the present epidemic showed more extensive membranes and a higher proportion of septic and toxic complications.[6] The low case fatality rate may be explained in part by the abnormal age distribution, with a high percentage of cases in the older age groups. If the Halifax case fatality rates by ages are weighted by a normal percentage age distribution of cases, as for instance Massachusetts cases from 1918 to 1929, the expected deaths are half again as many as were observed. In other words, as the peak of greatest incidence of cases shifts to older age groups it travels away from the high case fatality rates of infancy and gives an apparent mildness to the disease, as shown by a decrease in the number of deaths.

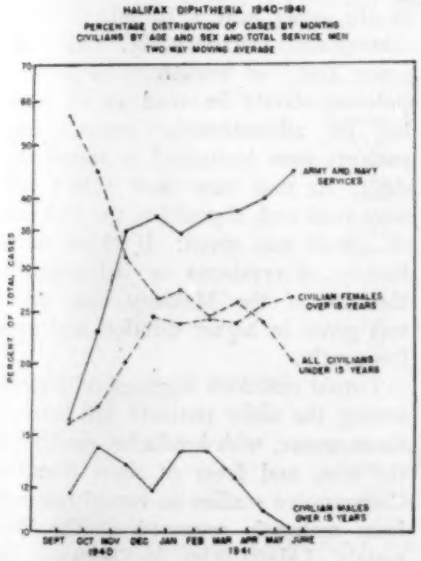

FIGURE 1

In the first stages of the epidemic the age distribution was normal. In December there was a decline in cases after the peak of November, followed by a rise in January, when there was a marked shift to the older age groups and the female sex. This dropping off of younger cases coincided with relatively thorough immunization of the school age population. The epidemic was maintained through June, when 50 civilian cases were reported, and the indications are that the epidemic is not yet burned out and that there is still a large reservoir of susceptibles in the unimmunized population.*

The curve of incidence among the armed forces followed or led the civilians very closely. Study of the records suggests that the epidemic started in the Norwegian merchant marine and quickly spread among the civilians in the waterfront area. Cases in the services appeared first chiefly in the Royal Canadian Navy personnel, whose contacts would be greatest along the waterfront. As with the civilians, there was a decline over the period of the Christmas holidays, followed by an increased incidence in January. Figure 1 shows how the forces climbed steadily in percentage of total cases in the given month, followed by the adult females, whereas the older civilian males and children of both sexes dropped off. Figure 2, cases of diphtheria by age and sex, shows even more markedly the preponderance of female cases between the ages of 15 and 30 years. History of contact with the forces was more than plentiful among diphtheria cases in women between the

* This is borne out by more recent figures on diphtheria in Halifax. From July 1, 1941, to April 30, 1942, 609 cases of diphtheria have been reported.

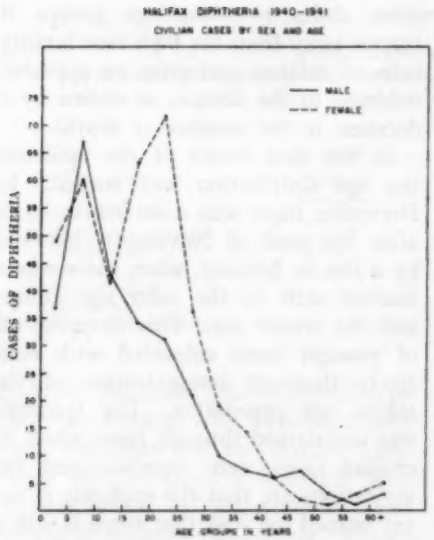

FIGURE 2

ages of 15 and 30. One cannot escape the conclusion from the study of available data that in its later stages this epidemic was maintained by the exchange of infection between the soldiers, sailors, and aviators and their wives or sweethearts in the town of Halifax. This does not preclude the possibility of reservoirs of infection among carriers and missed cases of nasal diphtheria in the preschool age group but, in the opinion of the authors, this was not the principal source of infection in the Halifax epidemic.

As might be expected of any community with areas of overcrowding and poor housing, Halifax had a concentration of cases where housing conditions were at their worst. A map showing the distribution of tuberculosis deaths in Halifax in recent years reveals a concentration of cases in the same areas as the diphtheria spot map. Here one also finds the largest number of multiple cases in houses and families. A carrier survey of over one thousand Halifax school children in February showed rates as high as 30 per cent for carriage of the diphtheria bacillus in one of the schools of this district, and 20 per cent in another. Not a single carrier of virulent organisms was found in certain of the schools in the better residential district. The average percentage of carriers among school children and clinic populations in the February survey was 11 per cent. In June, 840 school children were cultured and only 2 per cent were found to be carriers. Although there were 50 cases reported in this month, they were chiefly among adults.

Control measures included Schick surveys, isolation of carriers, and the establishment of clinics for active immunization against diphtheria. This was carried out with fluid toxoid, 3 doses at 3 week intervals, followed by a repeat Schick test in 3 months. As the attendance at toxoid clinics grew to hundreds and, for a brief period, even to thousands, practical considerations made it necessary to establish the following routine: All children under 12 years received toxoid at their first visit without regard to primary Schick test or sensitivity test. Older clinic patients received a Schick test in one arm and in the other arm 1/10 ml. of toxoid diluted 1/10 intradermally. This "Moloney Test" of sensitivity to bacterial proteins should be read in 48 hours, but for administrative reasons these patients were instructed to return in 5 days. At that time their Schick tests were read and, if positive, the first dose of toxoid was given. If there was a history of erythema or induration at the site of the Moloney test, toxoid was given in higher dilution and more frequently.

Toxoid reactions occurred only rarely among the older patients but were at times severe, with headache, swelling of the arm, and fever of short duration. Comparative studies on toxoid reactions from materials prepared at the Connaught Laboratories in Toronto and from other sources showed no signifi-

TABLE 3

Halifax Diphtheria 1940–1941
Estimated Percentage Distribution of Immunes in the Population by Age Groups from Schick Test Surveys and Records of Toxoid Clinics *

Age Group	(1) % Natural Immunes† by Schick Survey	(2) % Immunized with Toxoid July 1, 1940–May 31, 1941	(1) and (2) Total % of Immunes	(3) % Immunized with Toxoid Before July 1, 1940	(1), (2), and (3) Total % of Immunes
0– 4	11	14	25	...	...
5– 9	30	26	56	...	...
10–14	45	24	69	...	...
15+	51	1.7	52.7	...	...
All Ages (adjusted)	44.8	7.4	52.2	4.6	58‡

* The figures are based on 8,783 primary Schick tests and 8,417 completed immunizations.
† The rate of natural immunization during the epidemic is not considered in this table. Evidence from Schick testing at different times between September, 1940, and June, 1941, is not conclusive as to the extent of natural immunization at the subclinical level.
‡ Includes approximately 1.2 per cent of the population who have developed clinical diphtheria within the past 6 years.

cant difference in percentage of reactions. With proper precautions by sensitivity tests it was felt that immunization of older individuals with toxoid was a safe and advantageous method. Credit is due to the efficient follow-up work of the public health nurses that 92 per cent of the patients immunized completed their full course of 3 doses of fluid toxoid, and 70 per cent of those who started immunization completed their course and returned for a repeat Schick test. Shift to Schick-negativity among those immunized was

TABLE 4

Halifax Diphtheria 1940–1941
Incidence of Diphtheria in Previously Immunized Population According to the Time Interval Between Immunization and Onset Compared with Incidence in the Estimated Susceptibles of the Total Population

Interval Between Immunization and Onset	Immunized Population Observed at this Interval	Cases in Immunized Population	Attack Rate per 100,000 Population
0– 1 month	5,156*	7	135.7
1– 2	5,134	3	58.4
2– 3	5,096	3	58.8
3– 4	5,018	1	19.9
4– 5	4,817	..	....
5– 6	4,742	..	....
6– 7	4,616	1	23.8
7– 8	2,761	..	....
8– 9	176	..	....
9–10	131	..	....
10–11	101	..	....
11–12	31	..	....
Total Cases in Immunized Population		15	296.6
	Estimated Susceptible Population†	Cases in Unimmunized Population	Attack Rate per 100,000 Population
	29,117	590	2,027.0

* Period of observation between July 1, 1940, and June 30, 1941. Eighty-six per cent of the attendance at the toxoid clinics was in the 6 week period between October 20 and December 1, 1940.
† Based on 42 per cent estimated Schick positives in population. See Table 3.

over 95 per cent, according to tests given 3 months after completion of immunization.

An attempt was made to determine the immune status of the community and the results of immunization. It has already been shown that the case incidence among school age children decreased as the epidemic progressed. Table 3 shows the levels of immunity estimated for different age groups in the epidemic year. Note the rise in immunes in the 10–14 year age group. Another method of evaluating the effect of toxoid is to study the diphtheria occurring in immunized children compared with the rates for the estimated unimmunized susceptible population. Table 4 shows a comparison of cases among those receiving 3 doses of toxoid in the epidemic year with those having no history of previous immunization. From this evidence it would seem that the effect of active immunization with fluid toxoid is to protect against diphtheria after a relatively short interval. The transient protection afforded by passive immunization was seen in four contacts who developed diphtheria within a month of receiving 10,000 units of antitoxin prophylactically. A small clinic was established to Schick test, culture, and immunize contacts of cases. Even among the Schick-positive contacts, toxoid was employed in preference to prophylactic antitoxin to avoid unnecessary sensitization to horse serum.

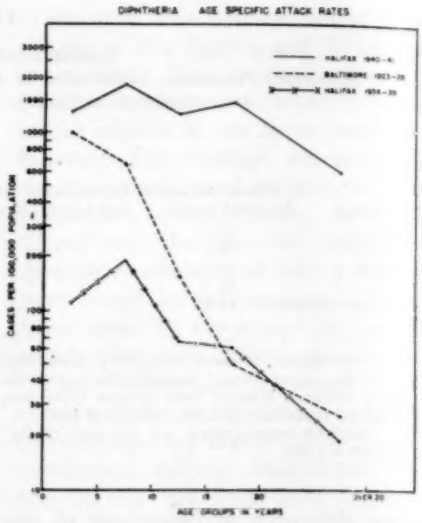

FIGURE 3

The level of natural immunity to diphtheria in the population can be seen in Table 5 of Schick test results in previously unimmunized individuals by age and sex. The relatively higher percentage of negative Schick reactions among males than females at all ages is consistent with findings reported elsewhere as reviewed by Doull.[7] The explanation for this phenomenon is obscure. The generally low level of immunity as indicated by the Schick

TABLE 5

Results of Schick Testing by Age and Sex on Individuals with No History of Previous Immunization

Dalhousie Clinic, Halifax

Age Group	*Number Tested Males*	*% Negative*	*Number Tested Females*	*% Negative*	*Ratio of % Negative Males to Females*
0– 4 years	371	12	391	11	1.09
5– 9	1,167	35	1,239	25	1.40
10–14	1,645	49	1,672	41	1.19
15–19	407	59	582	43	1.37
20+	167	55	982	52	1.06
Unknown	67	63	93	38	1.66
Total	3,824	43	4,959	37	1.16

TABLE 6

Halifax Diphtheria 1940–1941

Results of Schick Tests in Children, 5 to 14 Years, Compared with Same Age Groups from Other Surveys as to Per Cent Schick-Negative and Recent Prevalence of Diphtheria Includes Only Those with No History of Previous Immunization

Place of Survey	Rural or Urban	Year	Number Tested	Per cent Negative	Diphtheric, All Ages, Average Rate per 100,000 5 Years Preceding	
					Morbidity	Mortality
Alabama	Rural	1937–38	2,464	89	41.0	4.8
Virginia	Rural & Urban	1937–39	969	60	66.7	5.6
Baltimore, Md.	Urban	1933–34	1,863	51	63.0	3.8
Halifax, N. S.	Urban	1940–41	5,723	38	97.9	6.8
Kingston, N.Y.	Urban	1938	464	33	0.7*	0
Glace Bay, N. S.	Urban	1938	417	22	88.0†	10.3†
Cleveland, Ohio	Urban	1938	960	21	26.9	2.1

* Only 2 cases of diphtheria and no deaths reported from Kingston in the 6 year period, 1933 through 1938.

† These rates are from reported cases and deaths from diphtheria in Cape Breton County, Nova Scotia, in 1938 and 1939. For Glace Bay the average rates for the 10 year period, 1928 to 1939, are: morbidity, 27.0, and mortality, 5.8. The case fatality rate from these figures is 21 per cent which indicates incompleteness of reporting at that time. The more recent figures from the county in which Glace Bay is situated are considered a better index of the prevalence of diphtheria at the time of the survey.

test survey cannot be attributed in this instance to lack of experience with diphtheria in the past. Table 6 is a comparison of the Schick test levels in previously unimmunized school children in Halifax with surveys on a similar basis from other parts of North America.[8-14] Previous experience of the community with the disease, the attendant carrier rates, and the degree of urbanization are undoubtedly factors in determining the levels of natural immunity, but from the results shown in Table 6 this immunization seems to be more easily accomplished in the south than in northern climates.

The high age distribution of cases is also usually a characteristic of northern diphtheria.[15] In Figure 3 the age specific attack rates of Halifax diphtheria in the present epidemic and for the 5 years, 1934 to 1939, are compared with figures for Baltimore from 1923 to 1928. The two Halifax curves are similar, suggesting a permanent factor influencing the age distribution of cases. However, no such preponderance of adult females was seen in cases before the epidemic and the percentage in older age groups was not so great.

In conclusion, certain implications from this city's experience with epidemic disease should be emphasized in order to avoid, if possible, a similar experience in other communities.

1. The necessity for decent housing in defense areas.

2. To apply to civilian populations and to troops all the effective methods in our knowledge for the specific prevention of disease.

This is especially pertinent with reference to diphtheria. In this disease immunity decreases as one goes north as well as out in the rural areas. Likewise, it becomes less and less of a childhood disease. With this in mind, and particularly with reference to the United States Navy whose contacts are many in the north Atlantic, it is our opinion that every soldier and sailor should be Schick tested, and immunized if found to be susceptible.

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Need of More Adequate Public Health Programs in the Several States*

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WITH the clearing of the war situation, the urgent next step of public health administration in the United States is to provide effective local public health service, under governmental auspices, in every community of the nation. This statement is purposely bald, point blank, unadorned, and unqualified. There is deliberately omitted from it any recognition of the difficulties to be encountered, any reference to how the service is to be rendered, and any suggestion as to who shall pay for it. Nor, for the moment, is it desirable to go into details as to the quantity or quality or inclusiveness of service. The essential point to be emphasized is that nearly one-third of the population living in almost one-half of the counties of the United States are without effective tax supported, full-time local health services.

In most human affairs, a historical approach contributes to an appreciation and understanding of a current situation. Generally, too, it provides some insight as to measures to be employed in the future. For these reasons, it seems worth while to view this whole problem of public health service in the United States in perspective. When this is done there appear to be four fairly well defined periods: First, colonial and through 1868; second, 1869 through 1913; third, 1914 through 1934; and fourth, 1935 to the present. While these periods are not so sharply separated from one another as dividing dates might imply, they are rather definite as to trends. Each has within it certain significant events; each ushered in or brought to a close some concept or tendency or cycle; each offers a background against which the present may be placed.

FIRST PERIOD, COLONIAL THROUGH 1868

In this period people lived locally, their problems were local, and they acted locally. Unpleasant odors assailed the citizen, local authorities were bombarded with complaints, and, finally, in one community and then in another, laws were enacted or regulations promulgated, prohibiting nuisances and providing for their abatement. Or the factor precipitating action might have been an epidemic. Thus, in Colonial days, when yellow fever or smallpox made its appearance, the Assemblies permitted the various localities to organize boards of health for urgent action. Many such boards of health came into existence, too, because of cholera epidemics which occurred in the United States, beginning

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AUTHOR'S NOTE: As a matter of record it should be noted that Dr. Haven Emerson, though in no way responsible for the opinions expressed in this paper, has for some time been active in emphasizing the urgent necessity of providing adequate health service for every community in the nation.

in 1832 and continuing intermittently for nearly half a century. In the circumstances, it was quite natural that local boards of health were organized long before state boards of health: Petersburg, Va., had a board of health in 1780, but the State of Virginia did not organize its board until 1872. Although the records are not as orderly and complete as one might wish, it would seem that Philadelphia had a board of health in 1793, Pennsylvania in 1885; New York City in 1796, the State in 1880; Baltimore in 1798, or earlier, Maryland in 1874; Boston in 1799, and Massachusetts in 1869.

This observation that local conditions and actions preceded central administration is also to be seen in the development of national health services. It will be remembered that the beginnings of what we now call the United States Public Health Service are to be found in a Congressional Act of 1798, which provided for the furnishing of medical relief to merchant seamen. This Act, however, did not provide for any overall administration. Instead, each collector of customs appointed a local physician and made such arrangements as were needed for hospital care. To support this medical relief the master of every American ship arriving from a foreign port was required to pay to the collector of customs of the port entered, twenty cents a month for each seaman in his crew. This amount was deducted from the seaman's wages. Under this act of 1798, money collected in one port could not be utilized for medical care of seamen in another port, which again emphasizes that the activity was essentially on a local basis. Then, in 1799, a new act was passed providing that money collected in one port might also be spent for care of disabled seamen in a state adjacent to the one in which it was collected, except in relation to New Hampshire, Massachusetts, and Connecticut. After three years, these limitations were removed, and money collected for this purpose went into a general fund, to be used anywhere in the United States for disabled seamen. It was not until 1870, however, that a central administrative agency was provided, and at that time the care of disabled seamen was organized on a national basis. The same transition from local to national status may be observed in the development of maritime quarantine. Although Congress had, as early as 1796, passed laws extending federal aid in the enforcement of local regulations relating to ship quarantine, over three-quarters of a century passed before Congress enacted (1878) a law making this a federal responsibility. Even so, it was not until 1921 that the last local port quarantine station was taken over by the U. S. Public Health Service.

From even so brief a review, it is seen that the essential characteristics of this period were: (1) public health facilities arose only to meet situations where something had to be done, as in epidemics, nuisances, and sick seamen; (2) such measures as were taken were taken by local units of government, or for individual local service. There was no thought of wide-scale planning, overall administration, or compulsion.

SECOND PERIOD, 1869 THROUGH 1913

In 1869, Massachusetts established the first * state board of health and California organized the second in 1870. By 1913 all states in the Union had similar boards. Quite naturally each board on its formation had to go through a process of adjustment and consolidation before it could hope to function effectively. Most of them did this reasonably satisfactorily and de-

* This is conventionally accepted, though Kerr and Moll, in *Public Health Bulletin No. 54* (August, 1912), list Louisiana as establishing such a board in 1855.

veloped activities and programs which units smaller than a state could not well undertake. However, while these state boards of health struck a note of new significance in public health administration, they made but little contribution to the development of local health service. It was at first left largely to each unit of government to decide whether or not it would take advantage of legislation which permitted it to provide the community with a board of health and a part-time health officer. Actually, many state boards of health developed the philosophy that from a central office they could render to communities whatever local health service might be necessary. In any event, in the early part of this period local health services remained essentially as they were before the organization of state boards of health: A given jurisdiction might or might not have a local board or part-time health officer. Then in one state and another legislation which had previously left this matter to local option was made mandatory, and by the end of the first decade of this century, units of local government were required in most states to meet these more or less primitive standards.

In the meantime, however, knowledge as to public health matters had increased considerably and the provision of a board of health which met only in emergencies or occasionally, and the services of a part-time health officer whose principal duties were to attend the sick poor and occasionally to engage in vaccination against smallpox, were recognized as being inadequate. With this in mind, thoughtful citizens in many communities organized local effort to meet health needs that were quite obvious but completely neglected by the governmental agencies, and there arose many voluntary health agencies. But the influence of these efforts reached little further than their own borders, and most state health departments (or boards) remained lackadaisical as to local health work.

Then two new forces entered the field on somewhat of a national scale and exerted definite pressure for governmental provision of local health service. One was the Rockefeller Sanitary Commission, particularly interested in the study and control of hookworm disease, and the other was the U. S. Public Health Service, which in this area of its activities was especially concerned with the problem of typhoid fever. It may be said that as a result of the work of these two agencies there later developed the present concept that the first requisite in public health work is a tax supported local organization competent to render routine direct health service.

Late in this period, too, one of the most significant events in the history of the public health in the United States occurred in the State of Washington. This was in Yakima County, when Lumsden, of the Public Health Service, investigated the typhoid situation, which, in turn, led to the organization of a local governmental health service designed to cope with the problem. Perhaps in the nation there are one or two other counties which have prior claims to what may be called the first full-time county health department, but so far as is known the establishment of health work in Yakima County in 1911 is the first instance where, through coördinated federal, state, and local effort, a new standard of local health service was put into effect.

There is another episode in the development of federal health activities which is significant: the National Board of Health. As has already been said, it was in 1870 that central administration was provided for the Marine Hospital Service, and in 1878 that maritime quarantine was made a federal responsibility. In the meantime

cholera and yellow fever epidemics had so disturbed the nation that there arose a demand for coördinated action. Particularly active in urging this were the leaders of the newly formed American Public Health Association. In response to these demands, Congress, in 1879, created a National Board of Health. But this concept of a national responsibility for health, forecast by providing central administration in medical relief and maritime quarantine, was not sufficiently ingrained to sustain a National Board of Health. That organization was quite active for about four years, remained dormant for another ten, and went out of existence by legislation enacted in 1893. Nevertheless, the mere fact that such a board was created demonstrates what happens when the health problems of a large number of localities are added together.

Viewed in retrospect then, this period from 1869 through 1913 was one where in its earlier years legislation which had previously been permissive as to local boards of health and part-time health officers, became mandatory in many states. It was the period, too, when over-all administration of health matters was introduced in both state and federal governments, and of stabilization and consolidation of state health organizations. Toward the end of the period, there was a promise of interest and aid to state and local health work from the federal government and from a great foundation. Finally, there was another implication: a faint stirring of interest in providing more adequate and effective local health service.

THIRD PERIOD, 1914 THROUGH 1934

Of particular interest and significance in this period is the fact that, in 1914, the U. S. Public Health Service spent some $18,000 in field investigations in four counties, and continued this type of work during the next few years; that, in 1917, Congress provided an item of $150,000 for "special studies of and demonstration work in rural sanitation." This amount was considered a staggering sum in those days, but what is more interesting is this: The Act stipulated that "no part of this appropriation shall be available for demonstration work in any community unless the state, county, or municipality in which the community is located agrees to pay one-half the expense of such demonstration work." This not only forecast a higher standard of local health work through federal aid, but also required state or local participation, or both, wherever federal funds were used. In a similar manner the Rockefeller Foundation, and later the Commonwealth Fund, and other foundations, made significant and substantial contributions to the extension and improvement of local health service, and constantly observed the principle of requiring local participation in the financing of such work.

The response to this stimulation was encouraging. State health officers responded most gratifyingly. Many of the state legislatures made appropriations specifically for aid in the development of local health services, and in a number of states, where local units of government had no authority to expend funds other than for a part-time health officer, permissive legislation was enacted, making it possible to provide a higher standard of service. As a result of this new interest, and with continuing federal and foundation grants-in-aid, the number of communities with full-time local health service increased fairly steadily for a number of years: From about fourteen in 1915 to nearly five hundred by the end of 1929. However, this increase was not maintained during the next five years, for, whereas on January 1, 1931, there were 557 counties, townships, or districts having full-time health service, the number on December 31, 1934, was 540.

The early part of this period may be called the days of giants in public health administration. It was a time of vision, of action, of great accomplishment. Today's leaders in public health were tried and seasoned, and perhaps somewhat fixed in the mold. In the period as a whole, there was strengthening of state boards and departments of health, there was an expansion in the scope of the public health program, an improvement in the precision of local health administration. It is exceedingly important and significant, too, to note that public health history was tending to repeat itself: in the Colonial period legislation was enacted which permitted local units of government to provide themselves with primitive health organization if they chose to do so. In the next period, though some states took no action, many, through revision of existing laws, made the permissive legislation mandatory, or enacted new legislation to the same end. Now, in this period comes permissive legislation for a higher type of health service. Logically and historically, this new-standard permissive legislation will eventually be followed by laws requiring more modern and adequate health service in all units of local government.

FOURTH PERIOD, 1935 TO 1942

The discussion now enters upon the present period, its accomplishments, its trends, its significance, its deficiencies. The event which separates this period from the one preceding is the enactment of social security legislation by the Congress of the United States. This was in 1935. The Act carried two sections of unusual significance. These were Titles V and VI. Through the former, the Children's Bureau received $6,650,000 to aid in the development of state and local health work in the fields of maternal and child health and care of crippled children. Through Title VI, the U. S. Public Health Service received some $8,000,000, for similar aid to state and local governments in the general field of public health. Thus, where previously, federal grants for the country as a whole had been limited to comparatively small sums, the amount available under this new legislation was suddenly raised to millions of dollars. There was a rather rapid increase in the number of local health organizations, an improvement in their quality, an expansion and strengthening of state health departments—perhaps too much of the latter at the expense of the former. Emphasis was given to special problems and programs, and in general public health work in the United States was greatly accelerated. Measuring progress in terms of population provided with full-time local health service, it is found that as of June 30, 1941, approximately 70 per cent of the people of the United States were so reached. Using the county as a unit of local government, the record shows that, as of the above date, in 1,669 counties there was provided full-time official health service. One might say that this is excellent progress, and in many ways it is. But there are nearly 3,100 counties in the United States, and only a little more than half have developed full-time local health service; and there remain some 40,000,000 citizens whose governments have made available to them no better local health service than was possessed by their ancestors. Very few states and no federal health agencies have laid down any forehanded, organized effective plan for remedying this situation quickly and completely.

In the immediately preceding sentence is, perhaps, to be found the greatest barrier to the future of public health development in the United States. The solving of this problem will not be easy, and any plan to provide reasonably adequate public health service to the citizens of every commu-

nity in the country must consider three essential elements: First, it must recognize the difficulties; second, it must provide measures for overcoming them; and third, it must insure for each local jurisdiction or combination of local jurisdictions public health services which will apply to the maximum the present and future public health knowledge.

Of the known deterrents to the providing of effective local health service in all communities in the nation, the following are probably the most important.

1. Failure of most state health officers to be acutely concerned with the large proportion of the population not reached by efficient local health service.

2. Acquiescence, by most state health officers, in the belief that local health service in all jurisdictions in the state can be brought about only gradually and by opportunism and compromise.

3. The fact that in most states the decision to engage upon an efficient health service is a matter of option, to be decided upon by local government.

4. Authority to expend funds for public health purposes is vested in units of local government unsuitable for sound and economical public health education. This is seen more frequently where the township is the unit of local government, but not all counties are satisfactory in this regard.

5. Inadequacy of local financial resources in local units of government.

6. Too small or too scattered population in the local units of government.

7. The inadequacy of state subsidies for aid in providing health service in local units of government.

8. The absence of any clearly-cut formula for effective distribution of state and federal public health funds to local units of government.

9. A tendency of many state health departments to utilize federal grants for building bigger and better central state organizations.

10. The attitude and policies of some voluntary health agencies and physicians, of many part-time health officers, and, occasionally, of strategically placed politicians in the various states and communities.

11. Failure of federal health agencies to make granting of funds contingent upon submission of over-all plan by the state for application of such federal funds in all local jurisdictions. States receive federal grants on the basis of total population and total needs, but there is no requirement that the benefits of these funds be equally distributed to the total state population.

12. The enticing but treacherous comfort of *laissez faire*.

13. A combination of two or more of the above deterrents.

No sane person would claim that these difficulties are not real or that they may be overcome without effort. On the other hand, only a defeatist would contend that they are insurmountable. It is rather obvious that in spite of the large federal funds made available within recent years, the goal of reasonably adequate health service in all communities is still far from attainment. Further, it must be recognized that those local jurisdictions which now possess such service are generally the ones which occupy favorable economic situations. The units of government to be reached in the future are in the main local jurisdictions which are sparsely settled or very small or very poor or very remotely located, or very smugly stewing in the juice of their own tradition. The old basis of exhortation and salesmanship does not appeal to them. They can be reached only by a new and different approach.

No one may lay down in detail any scheme which would be applicable in all the states, but three necessities stand out clearly if all communities in the nation are to be supplied with local health service. The first is that federal subsidies for health work be granted to a state only if that state submit an over-all plan which will insure effective local health service in each of its local jurisdictions. The second necessity is mandatory state legislation, requiring that every unit of local government participate financially in providing its citizens with an effective local health service. The third necessity is for state legislation which, for purposes of public health administration, provides com-

binations of local units of government so that service may be performed on an economical basis and reasonably completely. As concerns the federal requirement, it would not appear to be either unreasonable or unconstitutional for the federal government to exercise its power to the end that all the citizens in the several states receive the benefits of these federal funds, thus preventing benefits from being distributed in a haphazard or opportunistic manner. Possibly this requirement could be provided by regulations of the Surgeon General and the Chief of the Children's Bureau in relation to the administration of Titles VI and V of the Social Security Act. Certainly it could be effected by amendment to these sections of that Act. If prompt action is to be obtained there must be some time limit for compliance with such a federal requirement. If and when the plan is put into effect, it might be required that a state, to be eligible to receive a grant for improvement of state and local health service must, by previous legislative enactment or by enactment of the next coming legislature, provide the necessary legal instrument for insuring state-wide local health service, and further provide a state appropriation which when added to that state's fair share of federal funds, would be sufficient in amount to provide such effective local health service. Obviously, it would contribute to ease and economy of federal and state administration and would get rid of much confusion and duplication of personnel and effort if, in this process of federal planning, the amazing and distressing separateness of the U. S. Public Health Service and the health activities of the Children's Bureau could be corrected.

In connection with mandatory legislation in states, many will say that the citizens and the assemblies of the states would balk at a law requiring an effective level of health service in all communities. Probably in some states this would be the case. However, faced with the loss of federal funds unless such funds were used for the benefit of all citizens of the state, probably only a few legislatures would remain adamant, especially as laws requiring a decent local health service would on their merits meet with popular support. And such legislation would be no new thing in state government. Every community is required to have a sheriff or police, courts of law, and a school system, among other things. Also, in the history of the development of public health administration in the United States, as has been recounted, the natural sequence of events has been, first, permissive legislation, the gradual acceptance of this permissive legislation by a number of localities, and then mandatory legislation for all localities. Local government units, thus, at first chose whether or not they would have a part-time health officer and a board of health. Later they were required to have these things. At present local governments choose whether or not they will organize effective local health service. The time has come to follow precedent and make the provision of effective local health service a requirement. The mandatory legislation in question, however, would in some way have to define what constitutes effective local health service, perhaps in terms of per capita expenditure for such services. Also, it would be necessary to provide some formula whereby the amount of funds provided by each local government of a state for local health service would be proportionate to the financial resources of that jurisdiction. Possibly it might be required that each jurisdiction set aside a certain proportion of its tax income. Further, in such legislation it would be necessary to provide that the local unit of government, having made the necessary appropriation, would have

assurance that the state health department, through funds derived from the state legislature and other sources, would be required to subsidize each local budget in sufficient amount to build local health service up to that level previously defined as effective. The exact provisions and requirements in legislation of this sort would naturally vary from state to state, but so long as the legal instrument provided brought the necessary results, such variations would not be detrimental but rather the contrary.

It is recognized, of course, that the problem of winning the war must take precedence over all other things. On the other hand, it is not too early to give some attention to this matter and to lay careful plans which at some early post-war period may be acted upon swiftly, boldly, and compellingly.

Wartime Public Health in Alaska*

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PUBLIC health problems in Alaska, generally speaking, are the same as those throughout the United States, but with many added complications related to the unusual in geography, population distribution, racial composition, weather, transportation, and communication. To these complexities add those of a six year old infant public health organization attempting to establish itself in a Territory which is made up largely of individualists, not too receptive to new ideas regarding public health improvement, and you have a working situation both intriguing and at all times stimulating. When, at last, there appear to be some signs of acceptance of the fundamentals of a public health program, suddenly double the population, add for good measure a war, which is very likely to be fought right at your front door—then you can realize the extent of the task which we face. For one who complains of the monotony of a smooth running health department, a term of service in Alaska in these times would prove at the least diverting.

The Territorial Department of Health furnishes generalized public health services to all people of Alaska, regardless of race. Acceptance of the whole public health program by Alaskans has been slow and, in many cases, reluctant. No city maintains a full-time health department or health officer. Public health laws are loosely drawn and in many instances sadly outmoded and obsolete but, in spite of this, the public health nursing programs in the various towns are well supported. Another indication of the interest of Alaskans, when sold on a proposition, is evidenced in their support of the tuberculosis control program. Their contribution to the voluntary Alaska Tuberculosis Association for the past three years has been 10 cents per capita, one of the most generous of any people under the American flag. In fact, this is the highest of any state, with the exception of Delaware.

I believe that Americans generally, and particularly those on the Pacific Coast, have a good mental picture of the geography and population make-up of Alaska, but there are some features, particularly as they relate to the war effort and bear on public health problems, which deserve a few brief comments.

The first of these is the immensity of the Territory. With its almost 600,000 square miles of land area, it is one-fifth the size of the whole United States. Spread these miles over with generous portions of high mountains, huge ice fields, thousands of lakes and great rivers, and then drench certain of these areas with as much as twenty feet of precipitation in a year, and you find conditions peculiar to Alaska alone.

The population of Alaska, according to the 1940 census, included some

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72,524 people, 39,000 of whom are white, 32,500 Eskimos, Indians, and Aleuts, and the balance made up of Filipinos, Japanese, and others totaling 900. This census, which was begun in October, 1939, was undoubtedly quite accurate at the time it was completed, but since then conservative estimates indicate an increase of at least 75 per cent in Alaska's total population.

In the best of times, as, for instance, before the war boom, transportation in Alaska was difficult, uncertain, and expensive. The total travel budget for our field personnel of seven persons in the 1942 fiscal year amounted to $13,300. All methods of travel available are utilized—airplanes, boats, trains, automobiles, but seldom if ever are dog teams used. The airplane has proved a real boon to Alaskans. One can get a plane almost any time to go anywhere, with the conditional "WP"—"PW," which means "Weather Permitting" and "Pilot Willing." I always start a field trip with a great deal of misgiving, as invariably when I am away from Juneau I will spend as much time waiting for boats or for favorable flying weather as I will in actually doing my field work. To pay a winter visit to our nursing service in Nome, some 1,500 miles from Juneau, means an outlay of travel funds alone of $300, and it may take from 5 days to 4 or 5 weeks to complete the circuit.

Communication is likewise difficult. Letters from some of the reporting villages may take as long as six months to reach the Juneau Office. Radio service is found to be most satisfactory but, even at the half rates available to Territorial agencies, it is extremely costly. Then, too, because messages go not by wire but by radio, they are subject to the strictest military censorship, and often we cannot actually say what we want to say for fear of giving valuable information to the enemy.

The influx of the advance army of civilian workers on defense projects began in earnest in the fall of 1940 and has continued undiminished up to the present. Exact knowledge on the increase in the population of Alaska is not available, but what we do know is that the continued inflow has made it impossible to plan even from month to month on the needs of established communities, as all plans of Alaskan strategy are military secrets.

One night the people of a community go to bed to wake up in the morning with a transport or two tied up at the docks or anchored in the previously quiet harbor, and the streets and surrounding roads teeming with men of the armed services. Over night a quiet and self-contained little Alaskan town has been transformed into a city—in most instances a rather "rowdy" boom-time city.

All this is happening in many communities, and the townspeople are simply overwhelmed in attempting to supply the diverse needs of these many boys and young men. These towns, all deficient in the ordinary facilities necessary for healthy recreation and entertainment, are unable to provide them. Some progress along these lines is being made, but in practically all cases the descent by these armies of civilians and the military has come so suddenly and unexpectedly that there has been no opportunity for communities to foresee their needs and prepare for their coming.

As long ago as July, 1941, together with officers of the Public Health Service, I made a personal survey of all Navy and Army bases under construction, with a view to obtaining funds under the Community Facilities Bill to provide the necessary sanitary and recreational needs for the adjacent communities. The requirements were almost too numerous to list, but recommendations were submitted immediately to Washington for health centers, hos-

pitals, water supplies, and sewerage systems. This program, however, has been painfully slow in getting under way. Nine months have passed since the survey was made and the first recommendations went in, and we are still waiting for many needed facilities. The fault does not lie wholly with red tape, but is due in part to the reluctance of local communities to accept their share of the responsibility, and to their suspicion of being given so much for so little.

In a few instances, the contractors importing civilian workers to the various defense projects have built their own towns completely. They have erected hospitals, clinics, barracks, mess halls, bath houses, laundries, and have provided some recreation facilities. Some have built temporary small family units for those workers who have brought their wives and children. In a few cases they have built temporary school buildings for these workers' children and for children of the families of the Army and Navy personnel. In these areas no serious public health emergencies have developed, but this type of development has been much too rare.

In the majority of cases the workers and their families have arrived in these small frontier towns and have been forced to shift for themselves in all respects. Shanty towns have grown up on the tundra surrounding the defense projects and nearby towns with all the concomitant health and sanitary problems imaginable. Schools have been overcrowded to such an extent that they have been forced to hold classes in shifts. People have been forced to sleep wherever they could find shelter and to eat in restaurants so overcrowded, and served by people so overworked that they would at times just "close shop" to get some much needed rest.

One experience I had which was not too uncommon in many other boom towns in Alaska, occurred when forced down in a snowstorm in the interior on a flight from Nome to Anchorage. We landed at dusk on a newly improved field, under construction by the Civil Aeronautics Administration, ours the last of fourteen planes to get in. On inquiry at the better of the two roadhouses, I found that my only chance for a bed was to wait until the 1:00 A.M. shift went to work and then to crawl into the warm bed of some night-shift worker, for a few short hours. They were working on that field in the month of November, three shifts in each 24 hours, and were sleeping three shifts in every cot and bed. At the same roadhouse, incidentally, meals were $1.50 each—breakfast, dinner, or supper, regardless of taste or appetite.

Immediately following the declaration of a state of unlimited emergency by the President on May 27, 1941, a series of meetings of the Divisional Directors of the Health Department were devoted to planning for probable needs in carrying on the regular program of the department as well as preparing for other exigencies.

Conditions in Alaska being unlike those in any of the States, each town or village is isolated from the others. If the war actually comes to Alaska, many of these towns will be completely isolated as regards outside help, so that plans for civilian defense and emergency services and supplies are based on the precept of self-sufficiency.

Among the subjects considered were those related to obtaining and maintaining large supplies of biologicals and their distribution to various strategically located towns throughout Alaska, plus the institution of a territorial-wide immunization campaign.

Through the Division of Communicable Disease Control adequate supplies of biologicals, including immunization stocks of typhoid fever, smallpox, diph-

theria, and whooping cough vaccines, tetanus and gas gangrene antitoxins, anti-meningococci sera, and drugs for the treatment of syphilis and gonorrhea, were obtained. Emergency depots for the more important of the above materials were established in each town where a Territorial public health nurse was located, so that there was a wide distribution of these materials throughout the whole territory. These stocks have been utilized freely by the civilian physicians as well as by the medical officers in the armed forces. These supplies are being drawn upon constantly and are being constantly replenished.

In February the program for the immunization of all children and adults against certain diseases was intensified. The diseases against which this program was especially directed were typhoid fever, smallpox, diphtheria, and whooping cough. Large stocks of biologicals were placed at the disposal of the private physicians through the public health nurses. The results have been most satisfactory in the protection of an increasing majority of the population. It was necessary to establish a rather liberal fee system for clinics and this has proved, by all ordinary standards, unusually expensive, but nevertheless very worth while.

Ninety per cent of our food must be transported by water from Seattle, as must most of the other necessities of life. With this in mind a food survey was made in December in all the principal towns of Alaska by the National Resources Planning Board in coöperation with the Territorial Department of Health. This was accompanied by an inquiry regarding stocks of drugs, bandages, surgical equipment, and other medical supplies. Response to this survey was slow because of disrupted communication facilities, and it was not until considerably later that an analysis of these stocks and probable future requirements was possible. On the basis of this information, however, requirements in the way of first aid and emergency medical and surgical supplies were estimated. An estimate of the cost of these supplies delivered in Juneau for distribution throughout the Territory was made and the American Red Cross was queried as to its ability to furnish these needs immediately. Promises for furnishing these supplies were forthcoming and some of the materials soon began to arrive. However, as the equipment and supplies provided were neither adequate nor contained the items specifically needed, communities have been forced to improvise. Shortages are still evident in most towns but it is hoped these will be corrected in the near future.

Through the Division of Maternal and Child Health, a pamphlet, "Food Facts," describing ordinary nutritional requirements, was prepared and has been widely distributed. In this pamphlet are listed substitute diets which will provide the elements of good nutrition under emergency conditions. By proclamation from the Office of the Governor of Alaska, residents have been advised to store all food supplies possible, for emergency needs. This is in direct contrast to the policy in the United States proper relative to food hoarding, but as Alaska is so unusually situated it is felt advisable for families to lay in as much food as they can safely store. The department has cooperated with the University of Alaska Extension Service in stimulating Alaskans to plant gardens, and a considerable amount of literature has been distributed by health agencies to future gardeners for this purpose.

Anticipating the many threats to the ordinary routine of a public health department, the policy has been to anticipate probable emergencies in the towns of Alaska which might be caused by enemy action. Sanitary require-

ments in the various areas were analyzed and necessary advisory literature was prepared and distributed to the many exposed communities relative to improvement and safeguarding of water supplies and sewage disposal systems. Other literature was distributed, treating with housing and food and milk sanitation.

The destruction of water supplies is one of the greatest threats, not because of a lack of available water, but because of the possible use of contaminated water. Plans for the patrol and the protection of water systems have been issued to the utility boards of the various cities, and the methods by which units may be supplemented or replaced. Also, detailed instructions have gone out for the proper sterilization of water in case it becomes necessary to use water from a questionable source. Plans for the substituting of pit privies and the maintenance of such have been completed and town officials have been informed of the methods and requirements for this type of public need. Plans have also been completed for emergency housing, not only of the casualties and hospital cases but also of the general civilian population in all the larger towns. Consideration has been given to the public health supervision of the many bomb shelters which are to be used in emergencies, as well as to the community kitchens for feeding large numbers of persons on an emergency basis, and organization for their supervision is being completed.

Early in the fall of 1941 plans for civilian defense organization were instituted. All our public health nurses had complete courses in Red Cross First Aid and many were qualified instructors, as were most of our other professional and technical personnel. All members of the Territorial Department of Health, including the clerical and stenographic staff, volunteered for active participation in defense and emergency medical organization, and in many instances were the leaders in medical and first aid preparation. Thus, by the end of November, all preliminary preparations were completed in most of the Alaskan communities to respond to almost any emergency.

Each town, at the instigation of the local Red Cross Chapter, organized women's corps of Red Cross workers to be trained in first aid and volunteer nursing services. Groups were organized to prepare first aid equipment, and many of the local schools, through their manual training instructors, and with the assistance of various service organizations, prepared portable first aid kits, stretchers, first aid station signs, air raid shelter signs, etc. Local physicians volunteered their services in manning casualty stations and emergency hospitals and assisted generously in planning the organization of the First Aid and Emergency Medical Service. In each town one physician was appointed as the emergency medical director and was made a member of the committee on civilian defense, thus integrating the first aid and medical work with that of general civilian defense.

From the very first, public health laboratory services have been made available to all the armed forces in Alaska and have been continued, even after the establishment of a large military laboratory. A program was worked out through our laboratories for blood typing all civilians in Alaska. A printed certificate for each individual typed was then issued, indicating that the person was negative to syphilis on that date, and was of a specified blood type. This plan was developed because of the impossibility of establishing adequate blood serum or plasma banks in Alaska, and because of the apparent impossibility of obtaining adequate plasma from the "outside." The typing of civilians eliminates one step

in the procedure of transfusion, if it becomes necessary, in the case of either donor or recipient. The inadvisability of attempting to prepare serum or plasma in Alaska again relates to the expense of the equipment, the small isolated towns and the still smaller hospitals. The largest civilian hospitals in Alaska do not exceed a total bed capacity of 65, and most of them are much smaller. Releases of the Office of Civilian Defense state that it is not feasible to organize the formation of plasma bank centers in hospitals of less than 200 beds.

The blood typing service has also been used on occasion by the Army, Navy and Coast Guard, particularly in Juneau, and at this writing more than 1,000 persons have been typed and serologically tested. As worked out in Alaska, the individual does not necessarily have to present himself to the laboratory to provide the specimen, but may have his blood drawn by a physician anywhere in Alaska, and the specimen is then mailed by the speediest method of transportation to either the Juneau or Anchorage laboratory, where the typing and serology are done. Reports are provided to both the patient and the physician submitting the specimen.

Arrangements have been completed with the Office of Civilian Defense and the American Red Cross, whereby the Department of Health will be responsible for the storage and distribution of blood plasma when and if it becomes available to the Territory. This plasma, of course, will be used only for unusual emergency needs and will be stored at strategic areas throughout the Territory.

Consultative service to the armed forces is available from the Divisions of Communicable Disease Control, Sanitation, and Laboratories. The Division of Public Health Nursing, through its various nurses in the many communities, has been able to provide ordinary public health nursing services to the families of civilian workers and the armed forces, as well as to carry on all the many special activities which have arisen in the public health nursing field.

Public health educational material in the form of news releases, pamphlets, motion pictures, and radio talks, have been used with the hope of improving public health in general, and have covered all the diversified phases of sanitation, nutrition, home nursing, and emergency services.

One of the most serious problems in Alaska at present is related to three preventable diseases. These are tuberculosis, gonorrhea, and syphilis—of importance in the order named. Tuberculosis, of course, is a problem involving the civilian population largely, while the latter two, which under prewar circumstances were of comparatively minor significance in Alaska, are, under present conditions, becoming of increasing importance.

The tuberculosis problem in Alaska is as old as the coming of the white man. According to all available statistics, the incidence of tuberculosis in the Territory is greater than in any state or other territory of the United States. The rate of infection is extremely high and the death rate a close companion. It is true that tuberculosis is much more prevalent among the natives than the whites, but accumulating statistics indicate that it is increasing among the white population year by year. A trite but true proverb in Alaska is that the white man first gave tuberculosis to the native and now the reverse process is true. The general death rate from tuberculosis for the year 1941 was 356.0. The death rate among natives for the same year was 701.6, and for the white population 63.9. The likelihood of the spread of tuberculosis to civilian defense workers and the armed

forces by infected residents does not seem too remote, and will certainly occur where intermingling of the enlisted personnel and civilian defense workers with the natives continues as is now the common practice.

One extremely serious and important public health problem which has not been adequately controlled is the increasing incidence of venereal diseases. The companion plague, prostitution, flourishes even more freely under present conditions. This is no new problem in Alaska and, although always of serious consequence, has in the present situation taken on new and dire significance. Alaska has been known as America's "last frontier" and as such has condoned conditions, in many instances quite openly, which would hardly be tolerated in the States. With the coming of this army of workers and fighters to the Territory and with few of the common recreational facilities available, professional prostitution has become a real threat to an all-out war effort.

Control measures consist, in the best regulated areas, only in the registration of the professional prostitutes, and weekly examinations by part-time health officers. They are finger-printed and photographed and if found free of infection are permitted to practise their profession unmolested, except for the weekly check-up. They are permitted to go and come as they choose and, even if found infected, are then only ordered to move out of town without any regular notice or warning to the police or health officials in the next town where they will take up their residence.

The Territorial Department of Health has established detailed plans and procedures by which venereal diseases and professional prostitutes might be more adequately controlled. Reporting of venereal disease cases has been simplified; free laboratory services have been made readily available; a wide variety of anti-syphilitic drugs are furnished free to physicians for the treatment of any case of syphilis, new or old, indigent or able to pay; and, finally, a fee system has been set up to reimburse physicians for the treatment of medically indigent patients. Drugs for the treatment of gonorrhea are available to physicians on the same basis as for syphilis, and laboratory diagnosis by smear and culture are available to those communities which are readily accessible by plane.

These procedures have not proved adequate for effective control. Much of the fault for the existence of professional prostitution lies in the local communities' *laissez-faire* attitude, but all the blame cannot be credited to the townspeople and officials, for it can be said, with reservations in only one or two instances, that the officers of the armed forces have not viewed with favor a program of repression of prostitution.

With this attitude prevalent, the institution of an organized program for the repression of prostitution has proved not only difficult but, to date, almost out of the question. The small and isolated towns, deficient in ordinary healthful recreational facilities and served by overworked part-time health officers, complacent city officials, and an indifferent public opinion, provide a set of barriers which we have found impossible to surmount. The answer to this problem might be found in a stronger program carried on by personnel from the Territorial Department of Health. This has proved to be not only impracticable but impossible, as the communities are too widely scattered and the central staff too small.

Assistance has been promised by the Public Health Service in the form of trained public health physicians to be assigned to the department to establish and to carry out the necessary measures. The coming year will show some

changes, for venereal diseases are increasing among the civil and military population, and the institution of adequate control measures becomes imperative. When Alaska continues to maintain second place in the gonorrhea rate of all states and territories, as it has for the past year, forceful measures are indicated.

The threat of war to Alaska has seemed very close in the past five months and seems closer with each passing day. We in Alaska feel that eventually we will have to play a more important part in this war and that it will certainly reach us eventually in the somewhat doubtful future—at any rate that is the basis on which we are making our preparations. It has brought to light many new and unsolved problems. We in the Territorial Department of Health have attempted to foresee the emergencies which will arise when the bombs actually begin to fall. We have planned as carefully as possible for these emergencies and for the most part feel that we are ready to meet them.

The Modern Public Opinion Poll*

A Means of Defining and Appraising Community Health Education Problems

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A BUSINESS man steps out on the street from the entrance of his Park Avenue apartment in New York City. A young man carrying a sheaf of ballots approaches him, saying: "I would like to get your opinions on some public health problems. The Health Department is trying to find out what the public believes about tuberculosis."

"Well—fire away as I walk along. But I'm afraid I don't know much about it."

"What do you think is the cause of tuberculosis?" asks the young man.

A moment's reflection, and then, "Most persons that get tuberculosis have brought it on by not taking care of themselves. They dissipate too much —too much smoking, drinking, and night life—and it just catches up with them."

The young man, jotting down notes on the ballot as he walks along, gives no hint of his own feelings on the validity of this assertion. His task is to get answers, not supply them. He next inquires, "Do you think tuberculosis is contagious?"

"I understand that it is, but I believe it is brought about more by the way an individual lives than anything else."

In the next few minutes the young man has noted the business man's viewpoints on how he believes tuberculosis is spread, the possibilities of curing it, the methods for treatment and diagnosis, and whether he believes it can be inherited. Cordially thanking him for giving his opinions, the young man says goodbye. He stops around the corner, however, to complete the information on the ballot which will properly classify the business man in the cross-section of the public that is being interviewed. Age, sex, economic status, nationality, and location of residence must be noted before the ballot is completed, and to make such classifications the interviewer has had to ask some other questions. These questions were prefaced by the statements, "To be sure that my interviews cover all types of persons living in the city, I would like to get just a little information about you—but I *don't* want your name." Questions would then be asked such as, "Would you mind telling me the general nature of your occupation?" "Were your parents born in this country?" or "Do you live in this neighborhood?"

Visualize hundreds of such interviews being made by capable interviewers, concerning health problems and services, and among all types and classes of persons living in the community. That is the way the public opinion poll technic was used by the District Health Educa-

* Read before the Public Health Education Section of the American Public Health Association at the Seventieth Annual Meeting in Atlantic City, N. J., October 14, 1941.

tion Demonstration of the Department of Health in New York City to study some of the educational needs of the 200,000 persons living in the Kips Bay-Yorkville Health District of Manhattan. Also, when Dr. Wilson G. Smillie, professor of Preventive Medicine and Public Health at Cornell University was making a survey of the facilities for the care of the sick in Rochester, N. Y.,[1] he considered it valuable to ascertain the feelings and opinions of the consumers as to the adequacy of their services by means of a poll.

Most large business corporations wishing to influence the public to use their products make a systematic and continuous study of those persons who constitute their market. They find it a sound investment to study the buying habits, living habits, opinions, types of advertisement read, radio programs listened to, and many other matters in the daily lives of all of us. From such an analysis, planning begins as to the best procedure for merchandising and advertising their wares.

The various national, state, and local health organizations have made little effort to adopt such research procedures to study *their* market. Vital statistics, incomplete morbidity statistics, sociological surveys, etc., have been the bases for planning. Valuable as these are, it must be recognized that the effectiveness of any community's preventive or curative health services is, in the last analysis, determined by the personal reactions of its residents toward those services. Therefore, efforts toward adult health education not based upon some accurate knowledge of the thoughts, feelings, and present level of understanding which characterize the cross-section of human beings comprising a community, can be neither completely realistic nor efficient.

Knowledge of the opinions of the man or woman on the street, the clerk in the store, the waitress, the truck driver, the housewife, the big and little business man, and all the others who make up the typical cross-section of the American community can be very valuable to public administrators and educators. For instance, after carefully interviewing such a cross-section, the New York City Demonstration found that some types of education were ineffective and others of less importance than previously believed.

In certain instances polls reveal substantial reasons for the public's not acting according to the knowledge it may possess. In such circumstances the educator might go on indefinitely trying to achieve a result unattainable by education alone. Illustrative of this point are the results of one of the polls in New York City. The Maternal Hygiene Committee of the Kips Bay-Yorkville Health Center decided to conduct an educational campaign to secure earlier registration for prenatal care. Such a campaign was felt necessary because available records indicated that in this district 50 per cent of the expectant mothers did not register with a clinic or physician until after the 6th month of pregnancy.

When a representative cross-section of the more than 200,000 persons residing in the district was asked about this matter, it was disclosed that over 90 per cent believed that a prenatal examination by a physician was essential, and over 70 per cent believed that prenatal care should be started between the 1st and 3rd month of pregnancy. Obviously, there was little need for the majority of the persons to be convinced that early prenatal care was considered of value. Why, then, the discrepancy between what the people believed and their actions?

For one thing, the poll revealed a distaste for having such prenatal examinations done in hospitals. Since many of the persons in this district, for economic reasons, have to attend hos-

pital clinics rather than consult private physicians, this was a point to be further studied. Why, if they could not afford a private physician, and if they believed that prenatal care was of value, did they not use the clinical facilities in hospitals which were well equipped for giving such care? The answers ran in this vein: "Too many men doctors around." "It is a strain on your nerves and your body to go to a clinic." "Don't like strange doctors pawing me." "You don't get any individual attention—treated like guinea pigs." Other comments showed that hospital administrative procedures, as well as factors in the training of certain private physicians, tended to discourage early registration. In brief, certain aspects of this poll did indicate a need for specific kinds of public education, but the whole problem of securing early pregnancy registration was revealed to have far more implications than could be solved by education.

This situation will serve to illustrate some generalizations which must be taken into account when evaluating the results of a poll.

In an interview a strong negative reaction concerning a situation may or may not indicate wherein the fault may be, since the opinion may be founded upon hearsay or unrealistic expectations as to what a service can or should be. It must be noted, however, that the variety of justifications in the way of comments which people give for their opinions frequently arise from the individual's own experience. These comments are sometimes tinged with emotion, false propaganda, loose reasoning, self interest, or even bitterness but, taken as a whole, they tell a dynamic story. In that story is reflected a stern caution to the educator to remember that personal experience remains the most decisive and permanent form of learning; an object lesson which both administrators and educators, in evolving their elaborate programs, sometimes forget.

The public opinion poll might be considered the modern counterpart of the "town meeting" because it affords a unique opportunity for democratic expression of opinion in a complex urban community. At the same time, the modern poll, properly conducted, represents an honest search for facts. The results sometimes give little comfort to those unaccustomed or unwilling to face realities.

POLL RESULTS

The following summaries indicate the nature of the material gathered in New York City and Rochester. Interpretation of these results in terms of applying the information to constructive planning cannot be attempted here. In most instances, however, the implications will be obvious.

New York City—

In one poll, while 68 per cent of those interviewed knew the Health Department operated district health centers, almost 80 per cent had no idea what services they furnished. Only a questionable 16 per cent knew the exact location of the health center in their district, since there was reason to believe it was confused with a hospital half a block away.

Eighty per cent believed that our modern way of living had not made it more difficult (physiologically) for women to have children. (The majority think better medical care makes up for any other deficiency.) Eighty-seven per cent thought children should be born in a hospital rather than at home. Of the seven tests or measurements made by a physician in the examination of an expectant mother, 48 per cent of the persons knew two or more.

More than half of those interviewed on one poll did not know that more persons in New York City during 1938

had been killed by falls in their homes than by automobile accidents. A number of persons stated that they had read or heard that more people were killed by falls, but—*they still didn't believe it!* There is a challenge to the ingenuity of the educator!

When asked who they believed was usually at fault in traffic accidents, 37 per cent said pedestrians, 34 per cent said car drivers, and 28 per cent said it depended on the situation. Over half (58 per cent) of those who felt the pedestrians at fault were car drivers, while of those who felt the drivers were at fault, 65 per cent were persons who do not drive cars, *i.e.*, pedestrians.

Only 22 per cent of the persons interviewed said that tuberculosis was caused by a germ, but 68 per cent believed it to be contagious. That climate is the most important treatment for tuberculosis is still believed by 45 per cent. Opinion was almost equally divided as to its being inherited. The contradictions in these figures on the tuberculosis poll (which also occurred in the national poll) are an extremely good indication of the confused thinking of the general public about this disease, in spite of all the education presumably undertaken.

Rochester—

Dr. Smillie in the section of his report on conclusions and recommendations regarding the Rochester, N. Y., study makes the following statement:

> The popular opinion study is particularly interesting in that it indicates just how the people themselves feel about the plan for care of the sick that has been developed by the leaders of the community. The people speak in no uncertain terms concerning existing inadequacies, and emphasize what they would like to have done in order to bring about an improvement in the existing situation.

The ballot used in Rochester contained some fifty items dealing with various aspects of care for the sick. The following items are mentioned from the poll for their general interest value:

One of a series of questions about physicians asked: "How did you pick your doctor?" The replies ranged over a considerable expanse of reasons for selections, but only 5 per cent indicated that their choice of a physician was based on preliminary investigation of his training, hospital staff connections, or such other criteria as are usually recommended. In another question, approximately 5 per cent indicated they seek aid from osteopaths, chiropractors, or Christian Science practitioners.

Rochester pioneered in developing hospital insurance and had under consideration a plan for medical care insurance at the time this poll was undertaken. The public response to questions regarding these insurance plans was therefore quite important.

The first question asked: "Do you believe the average family should have hospital insurance?" Ninety-two per cent said *yes*. The next question was: "Do you believe the average family with children can afford to pay $1.30 a month for hospital insurance?" Eighty per cent said *yes*. Then they were asked: "Would you like to have a similar insurance plan (to hospital insurance) to aid in paying for medical and surgical care?" On this 72 per cent said *yes*. The probable cost was included in the next question: "Do you think the average family with children would be willing to pay $3.00 a month, in addition to what they pay for hospital insurance, to cover medical and surgical care?" To this only 22 per cent unqualifiedly said *yes*. Obviously, when the results and comments on these questions on insurance were carefully broken down and analyzed, plans for further promotion could proceed on a vastly more realistic basis.

Partly as a result of the Rochester poll the visiting nurses changed their organization name from Public Health Nursing Association to Visiting Nurse

Association. Only 8 per cent of those interviewed could give the name when asked, "Do you know of any agency in Rochester which furnishes trained nurses at small fees for each visit?" Of those who had used this service, however, the result was 100 per cent enthusiasm. It is to be doubted after this poll that a service so highly regarded by its users will continue much longer to be unknown to the majority of the city's residents.

One question asked: "Is there any medical care which you feel you need but do not have taken care of because of the cost?" Only 15 per cent said *yes*. The comments for this group indicated that almost half referred to surgical attention believed necessary, and a third referred to needed dental care. Practically all the conditions mentioned were chronic disorders which presumably caused some annoyance or discomfort—hence the desire for medical care. Obviously the broader concepts of preventive medicine are apparently remote to the layman. It should be added, for the record, that men and women were represented in equal numbers among those saying *yes* on this item.

Dissatisfaction expressed in certain quarters with the plan used in Rochester to supply medical care for the sick poor was explained in part by the poll. It revealed that over a third of the poor and very poor did not understand clearly the procedure for obtaining a doctor, without cost, for an illness at home.

THE TECHNIC

Simply defined, a public opinion poll is a method of determining public reaction by interviewing a scientifically selected cross-section of the population. It should not be confused with "straw votes" taken of such population groups as telephone subscribers or automobile owners, in which the emphasis is on amassing a large number of returns. "Straw votes," regardless of the quantity, are not representative of all the heterogeneous opinion groups (e.g., young people vs. older people, wealthy vs. poor, etc.) in the total population.

In the public opinion poll, the number of persons interviewed is not nearly so important as is the accuracy and representativeness of the cross-section of the population which is to be interviewed. Once the cross-section of any unit of the population (e.g., a city, county, or state) has been accurately determined, a relatively small number of interviews, if they adhere strictly to that cross-section, will produce a fairly true picture of how the population is thinking about any given problem *at that time*. The classifications or controls which are used in determining a cross-section of the population will vary according to the purpose of the sampling procedure and the nature of the population to be considered. The main point is that interviews should be obtained from each of the opinion groups which make up the total population of a community and *in exact proportion to the size of that group in terms of the total population*.

In the polls conducted in New York City and Rochester, N. Y., the cross-section to be sampled contained five statistical controls: age, sex, nationality, economic status, and geographic distribution of the population. Each one hundred interviews tabulated had to be apportioned perfectly to these five controls. A spot map made of each hundred interviews showed geographical distribution in conformity with population densities, as well as a general spread. In each hundred there had to be the correct percentage of persons of above average, average, and below average income; of persons between 18 and 44 years of age and over 45; of men and women; and of foreign white and native white stock.

In conclusion it is pointed out that the modern public opinion poll, properly

conducted, is a scientific statistical procedure. To be of value it must be done carefully, by a person well trained in the technic, and conducted as an honest search for facts. With a staff member of a health organization properly trained in this procedure the cost of conducting opinion polls is not prohibitive, and may well be considered a sound investment in providing materials for efficient, intelligent planning of future work, not only in education but in public health administration.

REFERENCE

1. *A Survey of the Facilities for the Care of the Sick of Rochester, N. Y.* conducted for the survey committee of the Rochester Community Chest, Inc., Wilson G. Smillie, M.D., Director.

St. Louis Auditorium, Meeting Headquarters for the Seventy-first Annual Meeting of the A.P.H.A.

Effect of Hibernation on Content of Coliform Bacteria in Oysters

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DURING the autumn and winter of 1940 and 1941, the Department of Pensions and National Health and the Fisheries Research Board of Canada undertook an investigation of the effects of hibernation on the coliform bacterial content of oysters at Buctouche, N. B. It was thought possible that the contamination of oysters grown in some areas too polluted to permit direct marketing at other seasons might be sufficiently reduced during the winter hibernation period to make them safe food products. If hibernation was found to be a factor of safety, closure of such polluted areas and a consequent serious economic hardship to fishermen might be avoided.

It has long been known that feeding activity ceases in our Atlantic oysters *(Ostrea virginica)* at a temperature of about 5° C., apparently because the coördination of ciliary activity breaks down (Galtsoff, 1928). At temperatures close to 0° C. oysters remain closed almost continuously and are so inactive that, although they do not feed at all for long periods, the glycogen content is not appreciably reduced. It has also been shown that in sewage-polluted waters there is a decrease in the coliform bacterial content of oysters associated with this hibernation (Hunter and Harrison, 1928). According to Fisher and Acker (1935) the coliform content of water is less in winter than in late fall; "a marked improvement in the quality of oysters occurs within 1° C. of the freezing point" and "this improvement was much more consistent at these lower ranges of temperature than at any other cold-weather ranges."

In 1925 the U. S. Public Health Service Committee on Sanitary Control of the Shellfish Industry recognized hibernation as a factor of safety and stated that it might be utilized when the water temperatures fell to 5° C. or lower. This principle did not, however, receive general application in the United States.

In Canadian Atlantic oyster areas the water temperatures remain continuously below 0° C. for a considerable period each winter, during most of which the inlets are covered by ice. The conditions for the use of hibernation as a factor of safety are, therefore, much better than in warmer countries. Temperatures approaching the threshold of feeding activity (5° C.), and in our opinion too close to it for safety, were included in the hibernation period as tentatively applied in the United States. This was probably responsible for the apparent unreliability of the principle and, consequently, for its rejection there. Because of longer periods of

TABLE 1

Summary of Data

Date	M.P.N. of Coliform Organisms per 100 ml. of: Oysters (1)	Water (1)	Oysters (2)	Water (2)	Oysters (3)	Water (3)	Oysters (4)	Water (4)	Tidal Phase at Time of Sampling	Salinity p.p.t. at Depths: Surf.	25'	Water Temp. (Av. for 3 Depths) °C.	Summary of Weather Observations
1940													
Sept. 13													Rain; moderate N.
14	460		860		860		140		H.F.			16	Clear; moderate S.W.
16–17													Heavy E. gale and rain
20	1,860	240	22,000	460	180	1,500+	1,860	93	L.R.	8	24	16	Clear; calm
21–22													Heavy rains; moderate N.
23	460	150	300	93	180	460	180	210	L.S.	11	22	15	Clear; fresh N.W.
24–25													Heavy rain; S.W. gale in night
25	0	23	300	15	30,000+	150	1,860	1,100	½ R.			12	Rain; moderate S.E.
25–26													Rain; fresh N.E.
27	830	1,500+	9,200	1,500+	1,860	1,500+	460	1,500+	L.F.	4	7	12	Clear; light S.W.
28–29													Clear; light S.W.
30	460	93	300	150	180	1,500+	300	93	½ F.	10	24	11	Clear; light N.W.
Oct. 1													Clear; light S.W.
2	860	93	180	43	1,860	240	460	75	R.	20	24	12	Clear; light N.E.
3													Cloudy; fresh N.E.
4	180	150	0	93	460	460	80	43	R.	20	19	10	Cloudy; strong N.E.
5–6													Clear; light W. and N.W.
7	180	23	0	93	1,860	240	1,860	240	L.R.	17	23	11	Clear; moderate S.W.
8													Rain; fresh N.W.
9	80	23	140	23	80	9	80	93	L.F.	18	19	14	Heavy rain; light N.W.
10													Clear; light N.W.
11	180	43	860	43	460	3	3,000	23	H.F.	19	18	12	Clear; light N.W.
12–13													Clear; light S.W.
14	0	28	80	9	4,800	75	460	15	L.R.	19	23	11	Clear; fresh S.W.
15													Cloudy; fresh S.E.
16	60	7	180	93	860	43	300	93	H.F.	23	23	10	Clear; mod. N.W.; rain evening
17–18													Rain during night
18	80	9	80	23	1,860	460	460	43	H.R.	23	26	9.0	Clear; fresh N.E.
19–20													No observations
21	0	43	0	15	60	9	0	93	H.S.	23	24	4.4	Clear; mod. N.W.; 8" snowfall
22													Clear; moderate N.W.
23	0	240	0	23	0	240	180	43	L.R.	18	23	2.8	Cloudy; light S.
24													Cloudy; moderate S.W.
25	0	43	0	43	80	460	0	150	H.F.	17	26	4.2	Clear; light S.W.
26–27													Cloudy; with snow; mod. N.E. & N.W.
28	0	150	80	23	0	1,100	180	23	H.F.	16	27	3.3	Cloudy; light N.W.

	29													Bright; moderate N.
	30	0	15	0	9	0	43	0	4	H.R.	15	27	3.9	Clear; light N.W.
	31	0	0	0	3	0	11	0	3	H.R.	18	26	3.4	Cloudy; light N.E.
Nov.	1–2													Clear and calm
	3													Rain; fresh S.W.
	4	0	460	0	75	0	23	80	23	L.R.	19	22	4.6	Cloudy; strong S.W.
	5													Clear; moderate N.W.
	6	0	23	0	75	80	43	0	43	L.R.	21	26	..	Cloudy; light S.E.
	7													Cloudy; mod. N.W.; light rain
	8	0	23	0	93	0	15	0	11	H.F.	19	24	4.9	Dull; moderate S.W.
	9													Clear; moderate N.W.
	10													Light N.E.; snow
	11	0	15	0	0	80	15	460	15	H.R.	19	26	4.1	Dull; light N.W.; rain at night
	12													Rain in evening
	13	140	0	0	9	180	20	0	460	L.R.	21	24	6.4	Dull; light W.
	14													Rain; strong N.E.
	15	180	240	180	240	0	1,100	0	240	H.R.	11	18	5.1	Rain; strong N.E.
	16													Cloudy; moderate N.W.
	18	80	43	860	23	80	93	860	23	H.R.	17	24	4.3	Clear; moderate N.W.
	19													Clear; moderate N.W.
	20	180	93	460	1,100	180	93	460	93	L.S. (very low)	9	17	3.2	Rain; fresh S.W.
	21													Clear; moderate N.W.
	22	0	23	0	150	0	43	0	0	L.F.	11	20	3.7	Rain; light S.E.
	23–24													Clear; moderate winds
	25	80	0	80	9	80	23	0	4	H.S.	12	23	2.0	Light snow; light N.E.
	26													Clear; fresh winds; ice formed
	27–30													Much snow
														Snow and moderate winds
Dec.	2	...	...	0	21	80	23	0	75	H.R.	20	23	−0	Snowing; moderate N.E.
	4	...	...	0	23	140	15	0	23	L.F.	15	16	−0	Clear; light W.
	6	...	...	0	9	0	21	0	75	H.R.	16	23	−0	Clear; moderate E.
	9	...	...	0	43	0	43	0	23	H.S.	18	22	−0	Clear; light N.W.
1941														
Jan.	15	0	4	0	9	0	0	0	23	L.F.	..	..	..	Clear; very cold
	16	...	...	0	43	0	23	0	150	L.F.	5	22	−1.3	Clear; cold
	17	...	...	0	15	0	23	0	150	L.F.	..	..	..	Snowing; mild
	20	...	...	0	7	0	93	0	9	L.R.	25	28	−1.3	Mild

LEGEND

Phase of Tide at Time of Sampling:
- R. = Rising
- F. = Falling
- H. = High
- L. = Low
- S. = Slack
- M.P.N. = Most Probable number

p.p.t. = parts per thousand
Mod. = Moderate
N. = North
S. = South
E. = East
W. = West

cold water in Canadian Atlantic oyster areas, it is unnecessary to include such temperatures, or, indeed, any above 0° C., in the period during which hibernation may be considered as a factor of safety.

LOCALE

Buctouche, N. B., harbor was selected for this study because it is one of our more important natural oyster producing areas and had been shown on previous surveys to be subject to a fairly high degree of pollution. Oyster beds close to the village were considered potentially dangerous, but complete prohibition of fishing on them would cause serious economic hardship to local fishermen. An investigation of the coliform content of hibernating oysters had, therefore, an immediate practical significance in this locality.

The topography of the area is indicated in Figures 1 and 2. Although the population of the village is only about 1,000 and sewage from only a small proportion of the population flows directly into the estuary, surface drainage from higher levels through the village is also important. The impervious nature of the soil aids rather than prevents pollution from reaching the river. A number of dwellings of a poor sort close to the water at the up-river end of the village and boats at the wharf add to the pollution. As a result the areas close to the village must be considered too dangerously polluted to permit the direct marketing of oysters during open water. This is shown by the bacteriological data given below (Table 1).

METHODS

Bacteriological examinations of oysters and of overlying waters, and the recording of meteorological and hydrographic data, were commenced at the middle of September and continued until December 9 when the ice had formed for the winter. The investigation was resumed for a short period in January in order to determine conditions after water temperatures had been below 0° C. for a considerable period.

Samples of oysters and of the overlying water (approximately 1 ft. off the bottom) were taken 3 times a week

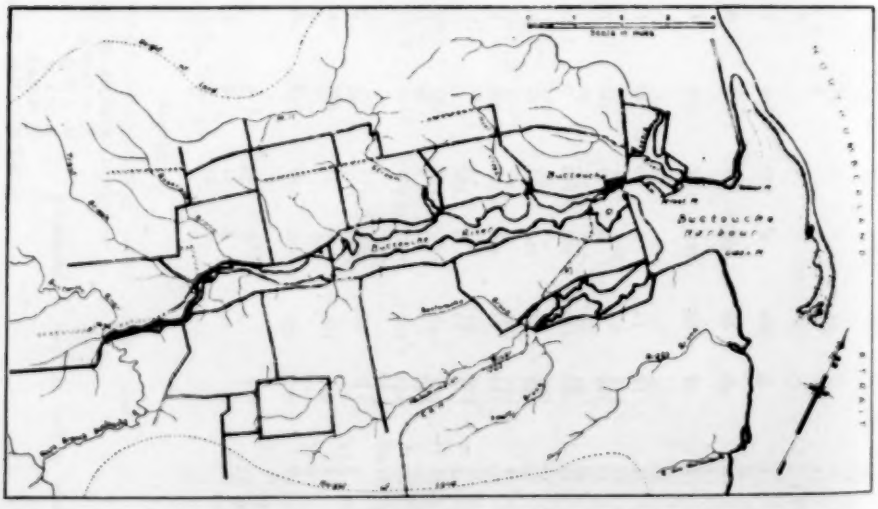

FIGURE 1—Chart showing topographical features of the Buctouche, N. B., district

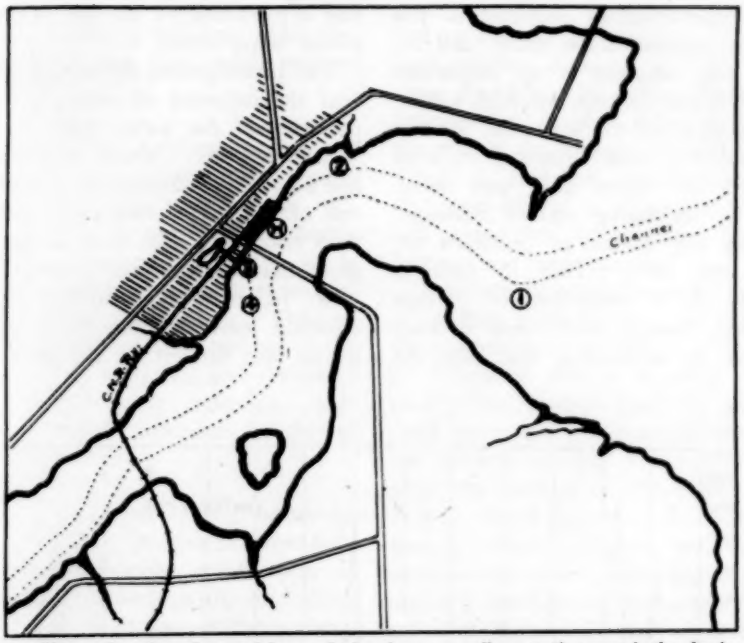

FIGURE 2—Chart showing the positions of the four sampling stations and the hydrographic station (H), in relation to the village of Buctouche (hatched).

at the 4 stations indicated in Figure 2. The positions of the stations in relation to the source of pollution have a direct bearing upon the results. Station 1 was farthest from the source of pollution, station 2 nearer but still at a distance, station 3 opposite the outlet of a cesspool, and station 4 just upstream from the outlets of several smaller sewers. At stations 1 and 3 the depths were 6 to 10 ft., and at 2 and 4, 15 to 25 ft. The hydrographic station was at the wharf where the water was 30 ft. deep. Water temperature readings and salinity samples were taken at three levels—surface, 8 ft. and 20 ft.—at the time of sampling. At the same time the phase of the tide was recorded.

The bacteriological methods employed were those outlined in the *Tentative Standard Procedure for the Bacteriological Examination of Shellfish and Shellfish Waters* of the American Public Health Association, December, 1940. All the bacteriological work was performed in the mobile laboratory of the Department of Pensions and National Health. Samples collected during the morning of each day were placed on test during the afternoon. During the winter the oyster samples were taken to the laboratory in pails containing water from the bay to prevent them from freezing. Three tubes were inoculated with each of three dilutions, and probable numbers of coliform organisms per 100 ml. were calculated.

RESULTS

Table 1 summarizes the data collected and Figure 3 illustrates the relationship of oyster pollution to water temperature and water pollution at station 2.

Effect of weather on the coliform content of the water—The data show

that great variations occurred in the coliform content of the water, and indicate that weather is an important factor. It may be seen that high values, such as occurred on September 20 and 27, October 11, and November 15, were preceded by heavy rain and wind. Rain, by increasing surface drainage, increases the volume of pollution entering the inlet. This in turn is reflected in a reduction of surface salinities. Heavy winds tend to keep pollution in suspension, but once the bay is protected by ice, the stirring by winds is prevented.

The investigation did not clearly reveal the influence of other factors on pollution of the water until the onset of cold weather. Much surface drainage was then eliminated by freezing and one of the major sources of pollution thus removed. The data in the table show that the coliform content of the water fell to a comparatively low and constant level at about the same time as ice was formed on the inlet. The

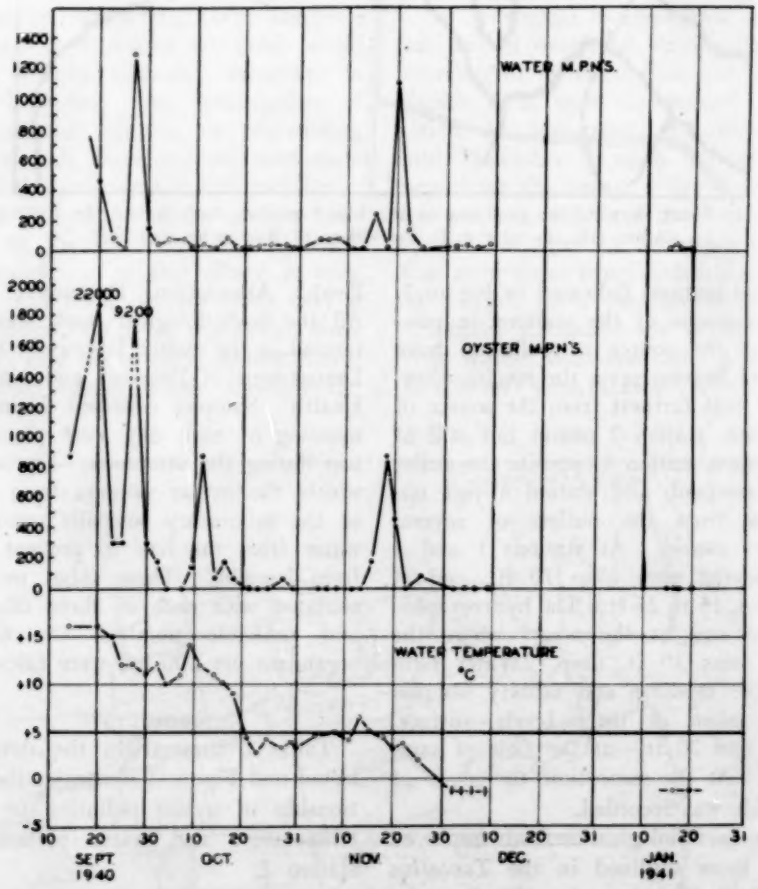

FIGURE 3—Showing water temperatures at the hydrographic station and most probable numbers of coliform organisms (M.P.N.'s) per 100 ml. of water and oyster meats at station 2

latter occurred on November 26 and would approximate the time when surface drainage was measurably reduced by frost.

Correlation of coliform content of water and of oysters during warm weather—The variations in the coliform content of the oysters were roughly parallel to those of the water up to October 21 when the water first became too cold for active feeding. This indicates that the coliform content of the oysters is both increased and decreased rapidly under such conditions and, therefore, quickly influenced by that of the water.

Influence of low temperatures—hibernation—After October 21 the temperature of the water rather than its coliform content became the controlling factor in the pollution of the oysters. On that date it fell from about 9° to 4° C. as a result of a heavy snow storm. The coliform content of the oysters suddenly disappeared for a considerable period in spite of the fact that the water remained polluted. Water temperatures again rose to 6° C. on November 13 and the oysters again became polluted. After this date the temperatures fell away again but this time very gradually. The accompanying decrease in the contamination of the oysters was likewise very gradual but it had disappeared, except at station 3, by the end of the month. The suddenness of the temperature decline may be of importance in regulating the speed of the self-purification of the oysters.

Importance of very low temperatures—Although water pollution persisted throughout the investigation, the table shows that no coliform bacteria could be demonstrated in the oysters after the temperature had fallen below 0° C. for a few days. This applies even to station 3 where the oysters were subject to the worst pollution. Extensive hydrographic data on a similar inlet show that after the ice has formed the temperatures remain below 0° C. for the rest of the winter (Needler, 1941). There is, therefore, reason to believe that mid-winter conditions are stable and that the observations made in January are representative.

The data clearly indicate the absence of coliform bacteria from oysters when the temperatures are below 0° C. This is contrasted with a variable, though usually low, content when the temperatures are below but near the threshold for feeding activity, 5° C. This confirms the findings of Fisher and Acker (1935) cited above. In Canadian waters, where sub-zero temperatures occur in all oyster producing inlets for about 3 months or more, hibernation can contribute to the safe utilization of oysters to a greater degree than in waters where such low temperatures do not prevail for any considerable period. Although some areas are so grossly polluted that oysters could not be used safely at any time, others which are dangerously polluted in warmer weather can be considered safe when covered by ice.

Time required for hibernation to become effective—The data indicate that when the water temperature first fell below 0° C. there was a quick effect on the coliform content of the oysters. On the other hand, it was still demonstrable in oysters at station 3 for at least 2 days after the temperature fell below 0° C. Thus, the coliform content does not disappear immediately after such temperatures are reached. For greatest safety it seems wise to obtain the full effects of the sub-zero temperatures by postponing commencement of the winter fishing until at least 2 weeks after final formation of the ice.

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"Olé Man River—she just keeps rollin' along." Visitors to St. Louis are especially anxious to see the Mississippi, the world's most colorful waterway.
A.P.H.A. SEVENTY-FIRST ANNUAL MEETING—OCTOBER 27–30, 1942.

The Epidemiology of Pneumonia*

The Rôle of Type 14 Pneumococci in Producing Illness

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THE purpose of this study was to determine the epidemiology of the pneumococcus in so far as it related to small children. We have considerable evidence that the behavior of the pneumococcus in infants and small children is different from that in adults; and it seemed possible that this behavior might give some clue to the factors that influence the spread of these organisms in the community.

The place selected for the study was a home for orphan children. This very large institution receives babies into a nursery, and, as opportunity arises, places them in suitable foster homes. Supervision of the children is maintained for long periods of time, following home placement. A hospital is maintained in the central unit for the care of those children under supervision who may, from time to time, require special medical care. The patients may come into the hospital directly from one of the nurseries, or may be sent to the hospital from the foster homes in which they have been placed.

In the fall of 1939 we began a careful study of the incidence of pneumococci in the nasopharynges of the children on the medical wards. Employing the same technics that had been used in our previous studies,[1] we took routine nasopharyngeal cultures from all the children in the medical ward. As a rule, cultures were taken on half the children each week, so that we obtained serial cultures from each patient at fortnightly intervals. All new admissions to the ward were cultured during the week following admission. If a child developed pneumonia, conjunctivitis, purulent otitis media, or other similar condition, the secretions were cultured as soon as possible after the appearance of the symptoms.

SUMMARY OF RESULTS

A summary of all the cultural results will give a preliminary index of the epidemiological situation. Eighty per cent of the 490 nasopharyngeal cultures that were studied were found positive for the pneumococcus. Five hundred and forty-six different strains were isolated; thus, some children harbored more than one strain simultaneously. This is in accordance with previous findings of ourselves[1] and others.

The distribution of the various types of penumococci among the 138 children with positive cultures is given in Table 1.

In this table we have included only those strains that were encountered in at least 3 per cent of the serial cultures. Other strains were found in a few instances—in fact, all known strains were encountered at least once, with the exception of Types 10, 12, 17, 26, 28, and 30. We do not believe that the

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TABLE 1

The Prevalence of Various Pneumococcus Types in the Children on the Medical Ward

Type *	Number of Children	Per cent of Children	Number of Cultures	Per cent of Cultures
14	50	32.4	143	26.2
19	42	27.3	102	18.6
6	31	20.1	69	12.6
18	21	13.6	45	8.3
23	15	9.7	23	4.2
16	14	9.1	22	4.1
3	14	9.1	22	4.1
1	9	5.6	18	3.3
Others	54	35.1	97	17.7
Total		†		100.0

* For purposes of simplicity, we have used the Arabic rather than the Roman numerals in designating pneumococcus types.

† Does not total 100 per cent, since some of the children harbored more than one strain.

presence of those higher strains that are encountered infrequently is especially significant, and therefore have omitted them from the table.

There is one outstanding feature of Table 1: the high prevalence of Type 14 pneumococcus in the throats of the children on the medical wards. We know that Type 14 pneumococcus is the most frequent and most serious cause of pneumonia in babies. This strain is encountered infrequently in a normal population, and when it is found in the throat of a small child, one must consider it a danger signal.[2]

The relative prevalence of various types of pneumococci that are encountered in the throats of infants and children has been determined by various workers. Nemir and associates,[3] for example, have presented the data given in the first column of Table 2. We have compared the prevalence of the various common types of pneumococci encountered in our series (shown in column 2) with Nemir's data. The percentages show clearly that the only outstanding feature of our series is the high prevalence of Type 14 pneumococcus. Our own previous studies of pneumococcus incidence in normal persons living at home,[1] which included both adults and children, indicate that the normal prevalence of Type 14 pneumococcus in the control families is approximately 3 per cent. This is comparable to Nemir's data.

Thus, in the present studies, Type 14 pneumococcus showed a prevalence of nearly ten times the normal expectancy. In fact, the prevalence of this type in the present study compares very closely with the relative prevalence of Type 14 in previous studies of series of actual cases of pneumonia that have occurred in children under 2 years of age. Curnen,[2] for example, in a study of a series of 600 pneumonia patients between 2 and 12 years of age, found that 25 per cent of the children with pneumonia were infected with Type 14 pneumococcus.

This analysis of the preliminary data makes it quite evident that it is necessary for us to explain the source of Type 14 pneumococcus in the ward, and to determine the cause of its presence there.

A study of the clinical condition of the children who were admitted to the medical ward gave us some inkling as to the reason for the high prevalence of Type 14 pneumococcus. Long and his coworkers,[4] in their studies of the nasopharyngeal flora of infants at the Boston Infants' Hospital, noted that Type 14 pneumococcus was prevalent not only in cases of pneumonia, but was encountered also frequently in infants with upper respiratory infections. They state that Type 14 was not found in the throats of normal babies. In our

TABLE 2

Prevalence fo Pneumococcus Types Commonly Encountered in Infants and Children

Type	Per cent in Nemir's Series	Per cent in Our Own Series
6	17.1	20.1
19	12.9	27.3
18	6.3	13.6
3	6.6	9.1
14	4.7	32.4

series, 114 of the 154 patients studied had some form of acute respiratory infection during their stay in the medical wards. It seemed quite possible that the Type 14 pneumococcus was prevalent because it was associated with acute respiratory infections other than pneumonia. An analysis of the incidence of Type 14 pneumococcus in acute respiratory illness is given in Table 3.

TABLE 3

Prevalence of Type 14 Pneumococcus in Children with Respiratory Disease on the Medical Wards

	No. Cases	*No. with Type 14*
Sick Children		
Those with Pneumonia	31	10
Those with Other Acute Respiratory Illness	83	30
Controls		
Children with No Respiratory Illness	40	10
Nurses Caring for the Children on the Wards	62	6

Table 3 shows that in one-third of the children with pneumonia, Type 14 was the presumable cause of the infection. The incidence of Type 14 pneumococcus in the children with other respiratory infections was equally high. At first, this seemed very important and significant, until we observed that one-fourth of the normal children also carried a Type 14.

In addition to the cultures taken on the children, we also obtained a series of cultures from nurses and physicians who cared for the children on the medical wards. Most of the nurses were on an affiliation basis: thus, they worked on the wards of the hospital for a few weeks only. This resulted in a constant change in the nursing personnel, so that it was not possible to follow the nurses with serial throat cultures for any length of time. From the total of 62 nurses cultured, 6 were found to be carrying Type 14 pneumococcus. In no instance was the infection in the nurse associated with pneumonia, or even with mild respiratory infection.

It is quite clear from Table 3 that there is no statistically significant difference in the prevalence of Type 14 pneumococcus in individuals who did or who did not have respiratory disease. This was a most baffling situation. One explanation might be that Type 14 was a relatively innocuous strain of pneumococcus that had simply seeded itself down in a group of children without causing any particular trouble. It was found in the throats of children with pneumonia and other respiratory diseases simply as a more or less harmless concomitant, and bore little or no relationship to the infective process. We did not believe this hypothesis to be the correct one, but we had no proof to the contrary.

During the course of our investigation in the hospital ward, we had noted that a considerable number of children with respiratory infections were being admitted to the ward from a common source—Nursery 6. This nursery, situated in a distant wing of the institution, was planned to care for normal babies that were awaiting placement in foster homes. Whenever a child in the nursery became ill, he was transferred to the hospital.

When we began our work on the medical ward, we found 6 children on the ward who had been admitted from Nursery 6 from one week to one month previous to the beginning of our study. Each of these children gave a history of acute respiratory infection, followed by otitis media. One had had severe conjunctivitis and 3 had had pneumonia. Each of these children was practically recovered from his acute illness when we began our work; nevertheless, 4 of the 6 had Type 14 pneumococcus in the throat at the time we made our first series of cultures. As our work progressed, we noted that children were being admitted to the medical ward in

increasing numbers from Nursery 6, all with respiratory infections. Five children, for example, were admitted from Nursery 6 with otitis media. The illness began with an acute respiratory infection, which was soon complicated by more serious and extensive symptoms. In each of these 5 children, Type 14 pneumococcus was obtained from the discharging ears or from the throat. We noted also that all these children had resided in the nursery for more than 20 days prior to the onset of illness.

Six other babies were admitted from Nursery 6 to the medical ward with pneumonia, and in 5 of them the pneumonia was associated with a Type 14 pneumococcus. This high prevalence of Type 14 pneumococcus in the children who were transferred from Nursery 6 to the medical wards indicated that it would be wise to look to the nursery as a possible source of invasion of the medical wards with Type 14 pneumococcus.

STUDIES IN NURSERY 6

We first appreciated the importance of Nursery 6 as a focus of infection with Type 14 pneumococcus about the first week of March. It became increasingly clear that here, in this nursery, was an important source of infection with this strain; and therefore we began to study the prevalence of Type 14 pneumococcus among the normal children in the nursery on March 11, and continued observations in this nursery through July 29.

This nursery covered an entire floor in another wing, and was composed of 8 rooms with from 2 to 12 beds in each room, a total of 63 beds. These beds were not separated by partitions; otherwise the medical and nursing care was essentially the same as on the medical floor. The children were cared for by student nurses who were on an affiliation basis, and who came and went in much the same manner as we have already described on the medical ward.

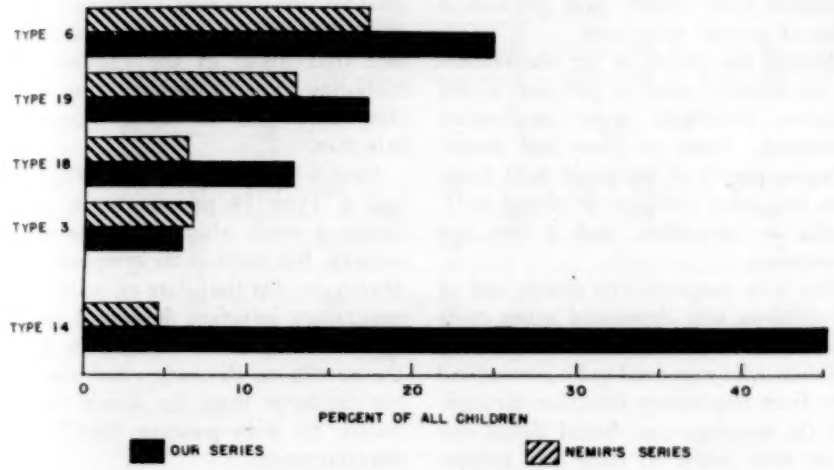
The population of the nursery was changing continually. Well children were brought into the nursery and kept there until they could be boarded out in foster homes or returned to their parents. New children who were admitted remained only so long as was absolutely necessary to arrange for foster care. Whenever a child became ill, he was, of course, transferred to the medical ward. The ages of the children in the nursery ranged between 3 months and 9 years: 60 per cent were less than 2 years of age, and 30 per cent from 2 to 5 years of age. There was a good deal of shifting about of the children in the nursery. One child did not stay in the same bed or the same room for any length of time. This continuous movement of the children made it impossible to determine each individual's contacts. It did aid our study, in that it gave ample opportunity for frequent transfer of existing infection from one child to another, as later evidence clearly indicated.

During the entire period of study in the nursery, 150 children were enrolled. The throats of all were cultured within a week after admission, and serial cultures were repeated on each child at least every fortnight. Four hundred and thirty-one throat cultures were made on these children, of which 81.5 per cent were positive for pneumococci. All told, 493 strains of pneumococci were found. The number is accounted for, of course, because in some instances a child harbored more than one type. The distribution of the pneumococci among the 150 children in the nursery is given in Chart 1. Practically all the higher types were found, but were present in such a small proportion of the cases that we did not consider it of sufficient interest and importance to include them in this chart.

Chart 1 indicates quite clearly that

CHART 1

PREVALENCE OF PNEUMOCOCCUS TYPES
AMONG CHILDREN IN NURSERY SIX
COMPARED WITH NEMIR'S SERIES OF NORMAL CHILDREN



the prevalence and the distribution of the various types of pneumococci in the nursery was similar to the distribution that we encountered in the medical ward. Type 14 was by far the most prevalent strain; other types of pneumococci were encountered in approximately normal proportions and in the same order of distribution as encountered in the medical ward.

The most striking thing about our studies in the nursery was that nearly half the children—45 per cent—carried a Type 14 pneumococcus at one time or another. These results are very different from the findings of other authors, and also from our own previous studies, all of which have indicated that Type 14 is *rarely* encountered in the throats of normal children. This point is most significant. It is generally recognized, as we have previously stated, that Type 14 pneumococcus is the most important factor in the production of pneumonia in children. High prevalence of this strain should be a matter of serious import.

Yet we had ample evidence that a virulent Type 14 pneumococcus had invaded a community of normal children without producing any symptoms. But it might be of potential danger. It is possible to imagine that some other factor might then enter this community, which is infected with a virulent but dormant strain of pneumococcus, and act as a fuse which would set off an explosion of serious respiratory disease. Normal children might harbor the virulent Type 14 pneumococcus for some time without ill effect, but some other factor might lower the resistance, general or local, of the child harboring this strain to such a degree that the virulent pneumococcus, which is resting unobtrusively in the throat, would flare up suddenly and produce serious symptoms.

We believe this hypothesis to be correct. It seems probable that the factor which was responsible for lowering the

resistance of the children to pneumococcus invasion was an acute upper respiratory (probably virus) infection. This initial infection, though in itself relatively mild in nature, enabled the virulent Type 14 pneumococcus to establish itself solidly and produce a train of serious symptoms.

During the period of our observation in the nursery, some 20 per cent of the children developed upper respiratory infections. Some of these had simple nasopharyngitis of the usual short duration, but other children developed otitis media or bronchitis, and a few had pneumonia.

We have prepared two charts, one of 15 children who developed acute colds while in the nursery, and another of 15 children who remained quite normal and free from respiratory infection throughout the investigation. Serial throat cultures were taken on these two groups.

Chart 2 gives chronologically the results of the serial bacteriological studies of the children who had respiratory infections. The duration of the respiratory infection is indicated by the brackets. Each culture in which Type 14 pneumococcus was found during the acute respiratory infection is indicated by a black circle. Cultures from normal children are indicated by squares. The chart brings out the very interesting fact that many of the children were harboring Type 14 pneumococcus *before they developed an acute respiratory infection.*

Case 5 is a good example. This child had a Type 14 pneumococcus in the throat a week after admission to the nursery, but showed no symptoms until March 26. On that date an acute upper respiratory infection developed, and on April 2 cultures taken from the throat, the middle ear discharge, and also from the discharge from the severe conjunctivitis, all were positive for Type 14 pneumococcus.

In case 6, cultures were taken from the child within 4 days after admission, and she was found to be already harboring

CHART 2

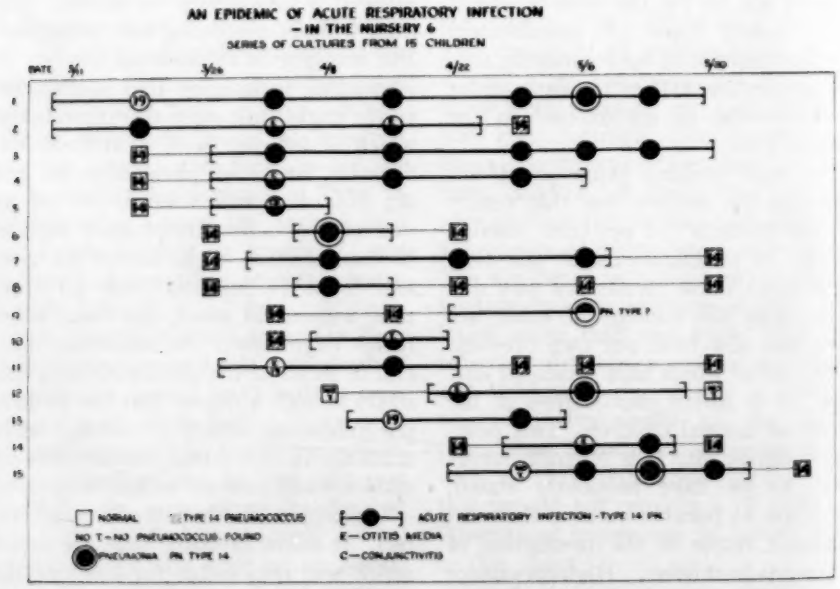
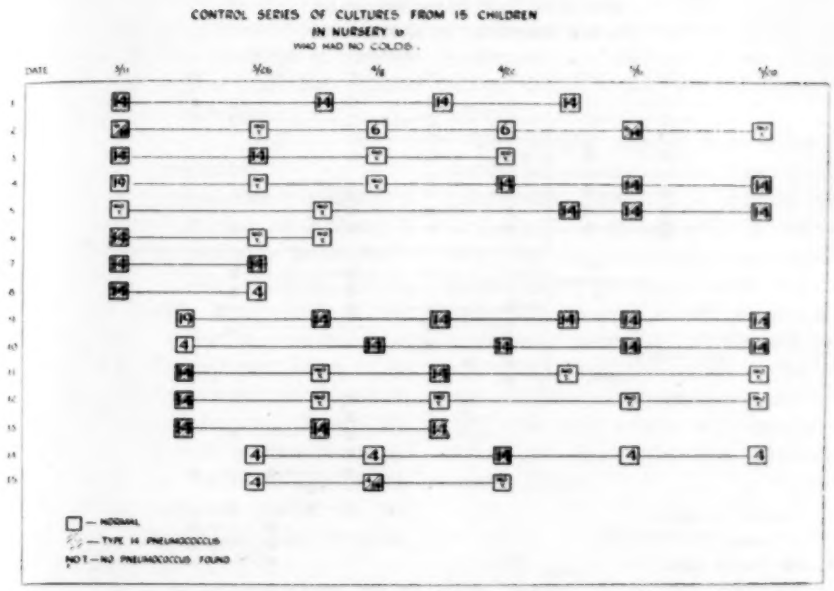


CHART 3



a Type 14 pneumococcus. Acute respiratory symptoms began on April 3, and on April 8 pneumonia developed. The sputum showed large numbers of Type 14 pneumococci. The child returned to normal about April 18, but cultures from the throat taken on the 22nd still showed Type 14 pneumococcus.

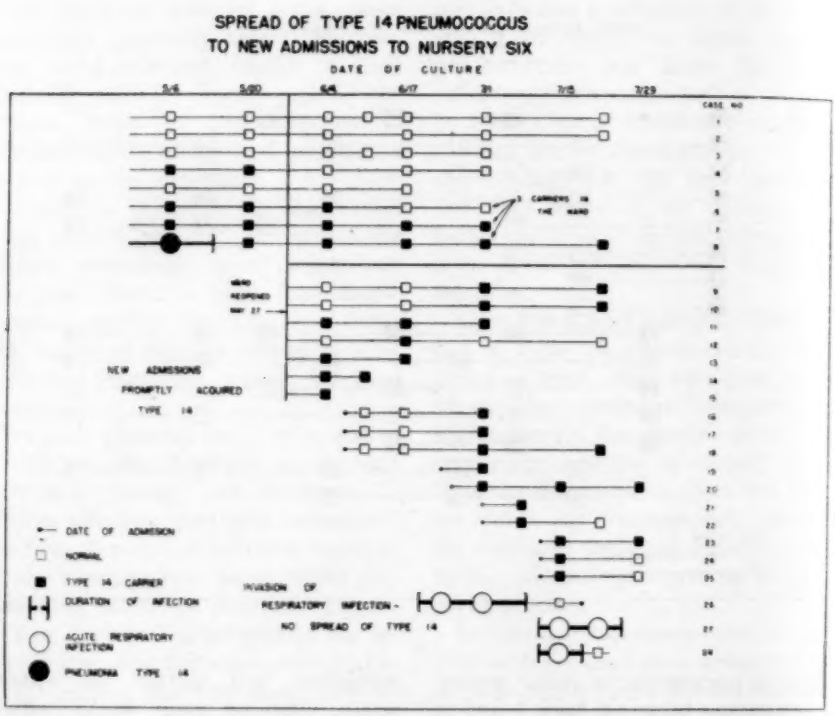
These observations on the two cases that we have described are quite typical of the results obtained in all the children whose serial cultures are illustrated in Chart 2. Type 14 pneumococcus did not seem to initiate a respiratory infection, but if a respiratory infection occurred in the presence of this organism, the strain found a fertile soil for invasion of and multiplication in the deep tissues.

Chart 3 illustrates the results of serial throat cultures upon 15 normal children who spent some time in the nursery. They acquired Type 14 pneumococcus, usually within one or two weeks after admission, and carried the virulent strain, often for many weeks, without apparent ill effect. None of this group developed an acute respiratory infection. The Type 14 pneumococcus caused these children no apparent harm.

These two charts show that the prevalence of Type 14 pneumococcus was almost exactly the same in the well children as in the group of children who suffered from respiratory disease. Thus, it may be argued that the Type 14 pneumococcus was a harmless concomitant invader, and played no part in the respiratory infections of the group.

We do not believe that this is true, since, in the children who were ill, Type 14 was found in very large numbers, often in pure culture, in the purulent secretions from the ears, the conjunctivæ, the bronchi, and the lungs. Type 14 was present frequently in normal children, but often it occurred in such small numbers that it was difficult to find.

CHART 4



TRANSMISSION OF TYPE 14 PNEUMOCOCCUS IN A CLOSED COMMUNITY

In the late spring we had an excellent opportunity to study the invasiveness of Type 14 pneumococcus under epidemiological conditions that resemble closely the classical controlled laboratory experiments in epidemiology of Greenwood, Topley, and Wilson.

Nursery 6 was closed to new admissions on April 25 because of an outbreak of chicken pox. Nine children remained in the nursery: all had been carriers of Type 14 pneumococcus at some time during the winter, and one had had pneumonia. Gradually, the Type 14 pneumococci disappeared, so that on May 21, when the nursery was reopened to new admissions, there were only 3 Type 14 carriers in the group.

We obtained serial cultures on each new admission to the nursery during June and July, and maintained serial cultures on the original group. The results of this study are shown in Chart 4. The chart shows that every newly admitted child acquired Type 14 pneumococcus within a month after admission. Some picked up the infection at once. In others, the infection did not occur for 2 or 3 weeks. The children from the original group who had harbored Type 14 during the winter and had lost it did not pick it up again.

Three children were admitted to the nursery during June and July with acute respiratory infections. This illness did not spread to the occupants of the nursery who were harboring Type 14 pneumococcus, nor did the children with the acute respiratory infection acquire the virulent Type 14 pneumococcus. One may conjecture that the season of the year was the important

factor in prevention of the spread of respiratory illness in the nursery at this time. If respiratory infection had been introduced into this situation in the fall or winter, we believe that the results might have been different.

SUMMARY

Type 14 pneumococcus invaded a group of normal children in Nursery 6 of the institution, probably in the early fall of 1939. This virulent strain, which is generally recognized as the most important cause of pneumonia in babies, caused no apparent harm to its host unless the individual developed an acute respiratory infection. When this occurred, the dormant pneumococcus at once invaded the tissues of the throat, and in some instances spread to the middle ears, the conjunctivae, bronchi, and the lungs.

Children from Nursery 6 who became ill were sent to the hospital ward. They brought Type 14 pneumococci with them. The strain spread throughout the medical ward, infecting most of the children on the ward at one time or another. If a child who had Type 14 pneumococcus in his throat developed a respiratory infection, the results were frequently quite serious.

This is the first instance in which we have encountered a high prevalence of a virulent pneumococcus strain in a community *in advance of the onset of illness in those who were carrying the strain.*

The studies suggest that a virulent strain of pneumococcus may enter a community, permeate it, invade many individuals, and linger for a considerable time without causing any apparent harm. Some untoward factor may then enter the picture (such as an acute respiratory infection) which will lower the resistance of the carrier of the virulent pneumococcus strain to such a degree that the strain will invade the tissues of the body and produce a serious illness.

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Working for Better Nutrition in a Rural Community*

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WORCESTER COUNTY, Md., is typical of the Eastern Shore area of that state, conservative and provincial, but favored with diversified crops and ample food resources. There is no reason why there should be a nutrition problem except that many of the 14,000 white and 7,000 colored inhabitants are poor and ignorant, and have large families. The possibility of fruitful nutrition work, other than in infant feeding, was scarcely considered by the health department personnel until the state nutritionists enabled them to visualize the existing problem and to learn some of the practicable technics for nutrition teaching and promotion.

A school lunch program was believed to be the most dramatic and tangible way to start work for better nutrition. However, it was decided to include educational work with prenatal patients and with family units. It was also decided to provide certain food supplements, if possible.

SCHOOL LUNCH PROGRAM

In examining the school lunch program as it then existed in the county, it was noted that only 7 of the 23 schools had any type of lunch program, and in only 2 of these was it customary to provide free lunches for children from indigent families. The lunch program varied from a single hot dish and sandwiches to a modern cafeteria service. Thus it was apparent that much room for work existed in schools; but evidence was needed of an existing nutritional problem in order to "sell" the community.

Dietary Survey—One of the earlier efforts was to define the magnitude of the nutritional problem among school children by means of a dietary survey. The data were recorded on a mimeographed sheet, listing a detailed inventory of the child's food consumption the previous day. A factor of error was granted, and a seasonal influence, but the nurses were sufficiently impressed by the results of the survey to consider the picture it revealed as essentially correct.

The findings more than confirmed the impression of poor dietary habits and the existence of a nutritional problem. For example, on the day of the survey during the winter, only 41 per cent of the children had two or more cups of milk; only 19 per cent had a diet adequate for vegetables other than potato; only 20 per cent had an adequate diet for fruits; 41 per cent for cereal or whole grain; but 97 per cent for meat. The others had either inadequate amounts or none at all of these various types of food. It was of further interest to learn that only 7.6 per cent of the children had a diet adequate in all five factors studied; 23 per cent were totally deficient in one factor; 35 per cent in two; 27 per cent in three, and 7.5 per cent in four. It was believed that such results with 1,169 school children must be significant.

* Read at a Joint Session of the American School Health Association and the Health Officers, Food and Nutrition, Maternal and Child Health, and the Public Health Nursing Sections of the American Public Health Association at the Seventieth Annual Meeting in Atlantic City, N. J., October 14, 1941.

To secure the basic data the coöperation of parents was enlisted in interviewing the younger children, grades 1–6. Above this grade the children filled out the forms as a classroom exercise. A nurse demonstrated the technic of an interview and supervised the work. The women who helped, and many of them were used, were impressed by the dietary picture revealed. For some the experience was emotionally moving, and lost none of its power as it traveled around the county at bridge clubs, church guild meetings, etc. The findings themselves and the propaganda created by the interviewers did more than anything else to marshall effective support for a school lunch program.

Other familiar promotional technics were utilized, such as programs at public meetings, newspaper articles, and exhibits.

The health department assisted in translating the community interest and support into action; however, it was left to the schools to assume the responsibility for the school lunch programs.

Supplies, Equipment, and Personnel—The question of supplies and equipment for schools just starting lunch programs was the least of the problems. These were made available by the school boards and by contributions of community organizations and individuals. It was believed that contributions by the local public health association, particularly if they could be made on a matching basis, would help and stimulate those schools with the poorest local resources. During the first year $100 was set aside for this purpose. For the future, it was planned that the public health association would be employed as a purchasing agency, particularly for small schools operating on a financial shoestring, and thus enable them to save money by buying in quantity.

The use of surplus commodities proved a powerful weapon in making possible a school lunch program, but it took about a year to work out a satisfactory modification of the regulations governing the distribution of these commodities. At the time our work began it was permissible to use them only in free lunches. The school was obligated to purchase identical supplies for use in paid lunches. Since the commodities were seldom sufficiently varied to permit the preparation of an entire lunch, it was, of course, necessary to supplement the surplus commodities for free lunches with other foods at the expense of the schools. Under these conditions the use of surplus commodities was not particularly helpful. Finally, the regulations were so modified that the commodities could be used for all lunches, free and pay, with the school providing supplementary foods for free lunches of a value at least equal to the surplus commodities accepted. When this was done, surplus commodities were acceptable to the school board and proved most useful in encouraging the lunch program.

Several resources were tapped for labor. Some of the larger schools secured cafeteria managers and workers through the WPA, but it was difficult to find persons who could qualify for the WPA and who at the same time were acceptable for this work. Smaller schools received help through the NYA. Other schools used volunteer workers, teachers, pupils, and parents for voluntary or part voluntary services.

Certain sidelights are interesting. Especially in a year of poor prices, but also at other times, it is possible to obtain products free for the picking. It was only necessary to organize volunteer labor for the picking and facilities for canning. The parents of pupils in one school for colored children conducted a summer canning project, using products obtained in this way. Some

canneries will put up food at little cost if it is first prepared. Another colored school maintained a program for a year, depending largely on supplies carried by the children and donated from home. Through the public health association a county-wide solicitation of canned goods and staple vegetables was approved, but lack of promotional time made it impossible to inaugurate the drive. There is no doubt, however, that much food could have been secured in this way.

Special Problems—Little effort was made to combat the concession problem—*i.e.*, the sale of candy and soda water at lunch time in the school, but the need for doing so was recognized as an early "must." Obviously, many children spent their money for these items instead of buying a nutritious lunch. The profits from these concessions often went to support school projects, such as purchase of athletic or auditorium equipment or library books. As such, the concession really represented a vested interest, and to combat it required tact and salesmanship. It was essential to sell schools on the idea, first, that profits from the lunch room should go back into the lunch program and that other projects must be financed in other ways; second, that if the lunch program really succeeded, there should be very little candy and soda water sold, and hence little if any profit from this source. A step in this direction made by some schools was the limiting of candy sales to a very short time near the end of the lunch hour.

Menus were poorly planned in some instances. This was particularly true in smaller schools with no home economics teachers and with such limited facilities that only a dish or two at most could be offered. For example, one school frequently limited its lunch to "hot dogs." Some teachers needed supervision in the wise and economical purchase of foods. For example, one school purchased fresh milk for cocoa when evaporated milk would have been cheaper and more convenient to handle.

It was also noted that certain types of surplus commodities were useless. Flour was one example if facilities for cooking, baking, or proper storage were not available. In other cases the teachers or cafeteria directors needed to learn how to use unfamiliar kinds of commodities.

Much of the food served free to children from indigent families was not eaten by children who were accustomed only to "hog meat" and potatoes. This represented waste, defeated the object of the free lunches, and had an unfavorable effect on the community. Supporters of the program tended to become discouraged when faced with such incidents. To combat this, the skillful teacher would discuss new and unusual dishes to be served for lunch in the classroom before the noon hour, explaining the value of such dishes. Efforts were made to establish a favorable group spirit among the pupils toward the school lunch—a technic that was often successful.

A further problem was the child who brought an unbalanced lunch from home. A home visit by the nurse or a PTA member might remedy this situation.

There was always the problem "who is eligible for a free lunch?" An eligibility committee, consisting of teachers, PTA members, nurses, and welfare workers worked out well.

It is our belief that most problems can be solved within the school by the teachers and pupils if they become sufficiently interested. Toward this end certain procedures were considered; such as school cafeteria committees, conducting institutes, and a periodic bulletin for teachers and cafeteria workers with nutrition news, teaching technics, and suggested menus. These

devices and patient personal contact work in time can solve most local problems.

THE PRENATAL PATIENT AND THE FAMILY UNIT

In addition to working on the school lunch program, other group activities in promoting nutrition were utilized. For example, the county home demonstration agent upon request visited the prenatal clinics, discussed nutrition with the patients, and demonstrated an appropriate dish. A home economics class for underprivileged women was conducted in one of the high school buildings, but for lack of attendance did not succeed.

In addition to these group activities, serious efforts were made to work with prenatal patients and with family units. For information on which to base their teaching, the nurses filled out dietary survey forms similar to those used in the school work. This was done when the patient or family was first admitted to service, or soon thereafter. The nurses would then follow up these patients on subsequent visits. This approach inevitably led to instruction in budgeting food money. Development of and adherence to a satisfactory budget was difficult to secure in families on a marginal and unstable income, and there were many such families. With those upon relief the aid of the welfare workers was solicited and obtained—this almost to the point of coercion with families of known irresponsibility. Even though few families were taught to budget adequately, considerable success was achieved in emphasizing the proportion of money to be spent for various types of food and in pointing out inexpensive types of food of high nutritional value. The nurses emphasized the value of home gardens, canning at home, storage pits for staple vegetables, and the family cow or the neighbor's cow for milk. With certain families definitely encouraging results were achieved. Interesting in this connection is the statement of one of the nurses:

> "Although I would like to see many families have cows, few of them do. Most families can neither afford to buy one, nor know how to care for one. Preaching the family cow is like butting one's head against a wall. Better results were achieved in teaching families how to use evaporated milk. Many mothers did not realize that this milk came from cows, and had no idea how to use it except to pour the undiluted milk in coffee. I feel that my major accomplishment in nutrition teaching has been in securing a greater use of evaporated milk."

FOOD SUPPLEMENTS

Distribution free or at cost of certain essential foods was undertaken. The public health association handled cod liver oil and considered powdered milk. The former was purchased by the drum, distributed in the clean, sterilized whiskey bottles so readily available. Later, capsules of shark liver oil were substituted for the cod liver oil which was then becoming expensive. The distribution of capsules was cleaner, proper storage was easier, and the capsules were more acceptable than the liquid cod liver oil.

Iron was distributed or prescribed to prenatal patients with anemia. The patients for whom it was prescribed usually purchased it at their own expense. A hemoglobin determination gradually became a routine procedure at most of the prenatal clinics. The data are too sketchy and the cases too few to permit conclusions about iron medication. However, in one clinic where recent records were reviewed, about 40 per cent of the patients on admission had a hemoglobin of 75 per cent or lower, as judged by the Tallquist scale. This usually improved under treatment. It seemed that patients with a low hemoglobin were more often prone to complications of labor than were other patients.

EVALUATION

Objective evaluation of the work is difficult because of the short time that the program has been in operation. However, all but two of the 23 schools started a lunch program. It will be of value at a later date to make another dietary survey in the schools, and to compare the findings with those given here. Improved school attendance did seem to occur, particularly in the schools for colored children after a lunch program was inaugurated.

The public health nurses from their case records can list many families who have improved their diets as a result of the nutrition work of the nurses. It might be worth while, using the dietary survey technic, to determine any trends in diet of families, and especially of prenatal clinic patients, and by following certain patients through repeated pregnancies to determine whether the dietary habits of these women have improved appreciably as a result of the work done with them.

Subjective evaluation, lacking more objective data, is of interest and value. The following, from a county nurse, commands attention:

> "I find that a mother who has been taught proper infant feeding takes at least part of this information over in feeding the next baby. This has not been true with my prenatal patients, however. There seems to be little if any carry over of better diet for the mother into her next pregnancy, but during any one pregnancy her diet usually improves as the result of working with her. Why there should be no carry over I do not know, except that financial means are limited, and a mother will feed her baby but do without for herself."

SUMMARY

In summary, the basic essentials for nutrition work in any county are believed to be: (1) effective leadership, to be supplied by the nutritionist of the state health department, county home demonstration agent, teachers, etc., and (2) a sufficient number of effective public health nurses to do the family case work, assist teachers in schools, and help with the promotional activities.

The program in one county has been described in which the school lunch program was featured. The problem was defined by means of a dietary survey. Lay helpers with the survey proved to be effective propagandists for the cause of school lunches. Equipment and money were provided by the school board, organizations, and individuals. Surplus commodities were used. WPA and NYA and volunteers provided labor. All but 2 out of 23 schools were stimulated and helped to start a lunch program in which free lunches were provided for the children from indigent families as a part of the program.

Demonstrations were conducted at prenatal clinics. A home economics class for underprivileged women did not succeed. Nutrition education for the individual and family, and particularly for the prenatal patient, was conducted by nurses. The dietary survey was the foundation for this work, in which types of food, budgeting, and the value of home gardens, canning, storage pits for staple vegetables, and the family cow were all emphasized. Cod liver oil and shark liver oil capsules were provided free or at cost to selected families; and an iron compound was given or prescribed for prenatal patients with anemia. In all of this work the coöperation of school authorities, welfare workers, the county home demonstration agent, and various lay organizations was available as needed.

The experiences recorded here make it clear that nutrition work represents a long-time educational project.

NOTE: I am especially indebted to Catherine Leamy, Maryland State Nutritionist, for guidance with the nutrition work in the county and to the late Mamie Thompson, Public Health Nurse, in Worcester County, for her unusual efforts in behalf of the project.

Housing as a Health Officer's Opportunity*

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LEADERSHIP in organizing community health services on a modern and adequate basis is what may be reasonably expected of any health officer. There is probably no one in the Health Officers Section who has not played his part as a leader in some of the well recognized activities of health departments, such as the prevention and control of diphtheria or tuberculosis or syphilis, or general civic sanitation, including privy or sewer construction.

Times like these bring repeatedly to the health officer challenges to exert himself in less-trodden fields, and among you there have been excellent pioneer workers in studying cancer and in organizing various approaches to the complicated problem of medical care and hospital service.

Some health officers feel that, while it is difficult to control what community services are assigned to the health department, there is obviously a risk in spreading the health department butter so thin over a multitude of administrative matters that the quality of the service rendered to the people will eventually become quite unsatisfactory, not only to the people but to the health department itself.

Until a few years ago the problem of improving the housing for the poorer segments of our urban population was not widely accepted as a health officer's responsibility in this country. During recent years, however, health officers who have been a trifle bold in approaching this knotty matter have occasionally found to their surprise an unexpected warmth of community support. Indeed, one health officer I know who ventured rather timidly in this field as an experiment, and then waited for the heavens to fall, was quite astounded to find that the better element in the real estate group in his community was not openly disturbed, and a little later the community and the health officer himself were asking the same question; namely, "Why didn't the health department become active in this field long ago?"

I should like to show that there is a real opportunity for the health officer who will recognize housing as a legitimate preventive health service reasonably to be expected from the health department by relating some of the more interesting experiences that we have recently had in Baltimore.

Even a casual review of our general nuisance abatement ordinances and certain sections of the local building code made it clear that there was ample authority for the City Buildings Engineer or the Commissioner of Health to issue orders on property owners where dwellings were found to be beyond doubt unfit for human habitation and dangerous or detrimental to life or health. A first approach just happened to result from a request from the

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rather new City Housing Authority that a very dilapidated slum courtyard be removed because one of the new Housing Authority building projects was to have its front yard just across the street from this slum unit. The owner of the property was notified by the City Buildings Engineer on the recommendation of the Commissioner of Health that, unless the properties were made safe and secure within a ten day period, action would be taken by the Bureau of Buildings under ordinance provision. This resulted in the demolition of the properties in question without noticeable protest on the part of the owner.

Some months passed by and the City Health Department through its Sanitary Section developed rudimentary inspection services aimed to discover similar rock-bottom slum conditions where dwellings, inhabited chiefly by Negroes, were frankly unfit for human habitation. At this juncture, the Health Department secured superb support from the City Welfare Department and also from the local press. *The Baltimore Evening Sun* established as one of its major interests the education of the general public in the matter of these local slum dwellings. It became customary over a period of months for the Commissioner of Health to make personal surveys in company with the City Welfare Director and the so-called "Architectural Correspondent," a very socially-minded editorial writer. The last mentioned gentleman brought with him a press photographer who had not only a good instrument but a vivid imagination.

This group, appreciating that they could not take the public to visit the worst slums, were in a reverse manner enabled to take the slums week by week to the very doorstep of the general public, and place before them, in a series of editorial page illustrated articles, information that was responsible for a phenomenal amount of public support for the program in question. The titles of some of these illustrated press releases were as follows:

Gems of Baltimore Architecture
A Slum No More
The Great Wall of Pine Street
Early American Interior
Landscaping in a Row House District
There's Gold in Slum Housing
The Bevan Street Housing Development
The Peach Street Arc de Triomphe
Rats and a Bathtub
The Health Department's Authority To Go After Rotten Dwellings
This House Had the Honor

The press articles in question appeared during an interval of about 18 months, beginning early in 1940. Some of them rather naturally were upsetting to the peaceful custom of allowing these worst slums to remain without attention. It soon became evident that there was a group of city officials who constituted a team with authority to take definite and suitable action in a variety of directions. It was also apparent that the team in question was very much like a group of football players who were placed on a field without uniform, without preliminary coaching or training and, under the gaze of an expectant grandstand, were called upon to produce with promptness a series of touchdowns; further, it became promptly apparent that no rules or signals had been established for their teamwork. From the early efforts it appeared as though one or another of the team at the signal secured the ball but ran in the wrong direction and made a touchdown for the opposite side.

What was necessary in the matter seemed fairly obviously to be some gentle and kindly group guidance, interspersed with much mutual toleration and patient persistence. There was thereafter little or no delay in bringing about very excellent teamwork in the group of official and nonofficial agencies that were involved in the problem.

Part way through the recent experience, a landlord refused positively to comply with the orders of the city authorities, that is, the Comissioner of Health and the City Buildings Engineer. The refusal eventually resulted in a legal battle which served as a test case. During this testing it was made clear that the ordinance provisions governing the matter were not adequate. Because of the great public interest that had resulted from the assistance from the press, it was not a difficult matter to secure the enactment of two highly desirable new ordinances. One has been given the title "Ordinance on the Hygiene of Housing." This added new sections to the city health code and authorized the Commissioner of Health to compel compliance with its provisions. The other, now known as the "Rooming House Ordinance," amended existing local legislation and greatly strengthened the authority of the city health department in preventing overcrowding of rooming houses in a manner that would be detrimental to health.

Even before the enactment of the new ordinances, the test case was won in the Criminal Court after nearly a year of legal maneuvering. The Health Department then found itself in a rather strong strategic position but without adequate personnel to make the many inspections that seemed to be needed. As an example of the conditions that had been found in rooming houses, mention may be made of one 15 room converted dwelling, housing 15 white families with a total population of 47 persons. Here 9 families shared 1 sink in the bathroom, 12 families shared 1 toilet, and 13 families shared 1 bath. The walls and toilet and steps were defective, not to mention rat infestation and accumulations of filth. Another sample was a 15 room multiple dwelling housing 5 white families. Here in 2 rooms lived a family consisting of the mother, father, and 6 children. In the same house there were 33 occupants and of these 20 were children. There was only 1 bathroom. The tub was not available, as the connections had been removed, and there were in the whole house only one basin and one toilet. Findings of this kind when brought to public attention resulted in the addition to the City Health Department staff of two full-time inspectors to care for the great overload of work, and this made a total of 3 men devoting their entire time to housing.

It is obvious that there are many steps which lie ahead in reaching a satisfactory solution of this housing problem for the community under consideration, but a fairly good start has been made and just now it does not seem probable that there will be any decrease in Health Department interest in this important health field.

It will be of interest to health officers to know that the Committee on Housing of the Health Officers Section has been active during the past year, although not as active as had been hoped for a year ago. On May 7 last it sent a circular letter to all the members of the Health Officers Section for the purpose of telling them of the committee plans and to secure responses indicating which members of the Section were particularly interested in housing as a practical problem of health administration, as well as which members wished to keep in touch with the committee and its work. Replies were received from 40 members of the Section. Of these, 14 were in cities of 100,000 population or over, and 17 were in cities of less than 100,000 population. There were also replies from 3 state health officers, 5 health officers outside of the country, of which 3 were in Canada, and 1 district health officer from a large city.

The following brief extracts from a few of these letters will indicate their general tenor:

"My present problem is to secure legislation by which I can prevent overcrowding in lodging houses where single and double rooms are rented as apartments."

". . . housing problems in the rural sections are fairly new to me, but I would appreciate any information or publications you have on that subject . . ."

"It seems to me that this is a field in which there is a real opportunity for the Health Officers Section to be of service to its members."

"I am extremely interested in the activities of your Committee on Housing. Housing has long been No. 1 public health problem in this community and with the addition of 12,000 defense workers it has presented difficulties for which we have been unable to find a solution."

"We note with interest, the organization of a Section Committee on Housing in the Health Officers Section. . . . The preparation of the brief working bibliography, to which you refer, may well be of great assistance to any of us. . . . There are, in (this city) a large number of substandard houses now occupied and it has been practically impossible to declare them unfit for habitation and require that they be vacated inasmuch as there are not adequate homes to which these occupants can be moved."

The replies were of great interest to the committee and it is hoped that during the coming year it may be more active and more helpful to the members of the Section.

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Relationship of Mental Hygiene to a Local Health Department Program*

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A MENTAL health program was inaugurated in Tennessee with the establishment of a Child Guidance Study, a psychiatric unit attached to the local health department of a rural county, in September, 1935. The immediate purpose of this project was a quantitative study of mental illness and maladjustment in a rural community, with the ultimate objective of devising and demonstrating methods for the inclusion of mental health procedures in the programs of existing public health agencies. The approach to the initial objectives and the results of the preliminary studies have been described in other papers from the study.[1, 2] The purpose of this paper is to present a progress report on a program designed to demonstrate the possibilities for the training of personnel and the application of therapeutic and preventive mental health measures through established public health agencies.

THE SET-UP

Although our ultimate goal is to provide a state-wide mental health service, the first stages of the program have been confined to a single county. It is our opinion that the county is perhaps the best basic working unit through which the mental health program can be applied on a state-wide basis. The experience gained in the one county used as a proving ground should determine largely the procedures to be followed in extending mental health services to other counties of the state.

Williamson County, Tenn., is a fairly typical agricultural county of approximately 25,000 population. It has had a local health department since 1921. For the past twelve years the health unit has had a staff which, according to present-day standards, is adequate to meet the usual public health requirements of a rural county. For the past six years the Child Guidance Study, though administratively a unit of the State Department of Public Health, has functioned as a branch of the county health department. The regular personnel of the study consists of 5 full-time workers (director, 3 nurses, and secretary) and a consultant. The director and consultant are psychiatrists. The nurses have had varying degrees of special training in the fields of psychology, psychiatry, and psychiatric social work.

* Read before the Health Officers Section of the American Public Health Association at the Seventieth Annual Meeting in Atlantic City, N. J., October 14, 1941.

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THE MENTAL HEALTH PROBLEM

The scope and extent of the problem of mental illness and maladjustment are gradually receiving due recognition. People are coming to an appreciation of the importance of mental health for physical well-being and the social and economic life of the nation. In appraising the problem of mental health we must take cognizance of groups other than those with frank mental disease. All personality deviations that render human beings less happy, less efficient, and less able to adjust themselves to established social amenities must be taken into account.

Current literature is studded with communications that exemplify the infiltration of psychiatry into all fields of medical work. Many authors, particularly Bassett,[3] have pointed out the broader community aspects of mental hygiene. Various surveys in this country and abroad have given some indication of the prevalence of mental and personality disorders. Among the most thoroughgoing and illuminating surveys are those of the Mental Hygiene Study of the Eastern Health District of Baltimore, Md. That survey was first described by Fairbank[4] in 1936, at the annual meeting of this Association. Subsequent reports by Cohen and Fairbank[5, 6] and Freeman and Cohen[7] showed that in the urban area of about 56,000 population studied, approximately 4½ per cent of the inhabitants had definite mental or personality disorders, while an additional 2½ per cent presented conduct and behavior disorders, the majority of which could be classified as mental health problems. Recently, Lemkau, Tietze, and Cooper[8] published a brief review of the Eastern Health District Mental Hygiene Study, in which some of the possibilities for therapy and prevention were outlined and the possible use of public health personnel in such work was suggested. While not all of their findings are applicable to the mental health situation in a rural community, their prevalence statistics are revealing and, interestingly enough, correspond rather closely to ours.

In Williamson County, the psychiatric survey made by our study[2] revealed that on September 1, 1938, there were at least 1,721 persons, or 69.4 persons per 1,000 population, whose condition merited psychiatric inquiry and consideration of treatment or pre-

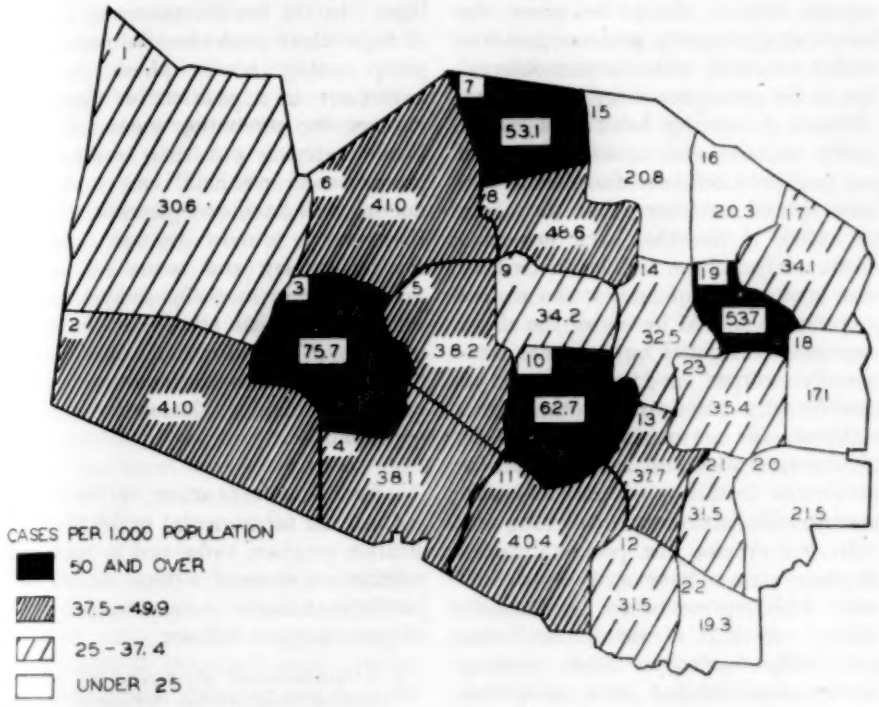
TABLE 1

Psychiatric Classification of 1,721 Residents of Williamson County with Rates per 1,000 Population, as of September 1, 1938

Classification	*Number of Cases*	*Rate per 1,000*
Total	1,721	69.4
"Active" Cases	914	36.8
Psychotic and post-psychotic	121	4.9
Psychoneurotic	89	3.6
With conduct or behavior disorder	285	11.5
With psychopathic traits	152	6.1
With special personality type	208	8.4
Mentally retarded *	19	0.8
With organic conditions, handicapped, miscellaneous	40	1.6
"Inactive" Cases	807	32.5
Post-psychotic	35	1.4
Formerly psychoneurotic	10	0.4
Formerly with conduct or behavior disorder	129	5.2
With psychopathic traits	34	1.4
With special personality type	126	5.1
Mentally retarded	184	7.4
With organic conditions, handicapped, miscellaneous	289	11.7

* Includes all cases of mental retardation presenting active problems which are not included in the classifications higher on the list.

FIGURE 1—Distribution of active cases on September 1, 1938, Williamson County, Tenn. (Districts 3, 10, and 19 had intensive survey)



ventive measures. Of these cases, 53 per cent were classed as "active" mental health problems (see Table 1). The remaining 47 per cent, while classed as "inactive" were regarded as potential problem cases. The rate for active cases was 36.7 per 1,000 population; and if all cases of mental retardation had been included in the active group, this rate would have been increased to 44.5 per 1,000 population. Furthermore, it was judged that, in at least 604 of the cases (24.4 per 1,000 population), the mental disorder or personality maladjustment was of such magnitude that psychiatric treatment was urgently indicated. Moreover, there is much evidence that these prevalence figures were too low; in three representative areas of the county that were intentionally subjected to more searching survey, the case rates were almost twice as high as the rates for the rest of the county (see Figure 1).

Every community has its quota of individuals with mental disorders and personality deviations. Every community agency, in one way or another, faces the problem of dealing with this group of people, and the public health organization should be particularly concerned with them. Among those with more serious mental disorders, the psychotic, pre-psychotic and post-psychotic present special problems of management in home and community. The psychoneurotics require a distinctive type of approach by those administering medical care. The epileptics need careful supervision of drug therapy and general hygiene. The feebleminded must be managed quite differently from other

people. The spastics and all others, mentally or physically handicapped by organic defects, should be given the benefit of appropriate guidance and corrective measures, with constant observation of the principles of mental hygiene. Children presenting habit patterns of faulty nervous and emotional control and persistent behavior disorders should have special attention, that they may be saved, if possible, from becoming misfit adults. Last and largest, comes that great group of adults who cannot properly be classed in any of the above mentioned categories but who are emotionally warped or unstable and/or intellectually handicapped; these generally provide our most serious problems of conduct disorder as well as innumerable instances of uncoöperative, unreasonable, and antagonistic behavior.

In our opinion the people included in these classes have a disproportionately high representation in that oft-cited "one-third of the nation" that goes without adequate food, clothing, shelter, and medical care, and they undoubtedly make up the great bulk of that segment of our population. The fact that these people lack a fair share of the benefits of modern civilization is not so much an indictment of our way of life and our system of medical care as it is an indictment of our tendency to treat all men as equal *and therefore the same*. Mental disorders and personality deviations should be recognized and should be accorded appropriate management. Public health workers, to attain the maximum of success in their programs, must know when to adopt a policy of individualization of approach; they must recognize the personal variations in people and, in addition to employing specific procedures for mental health, they must adapt their standardized technics to meet individual situations.

Certain public health activities which are more or less universally established provide splendid opportunities for constructive work along mental hygiene lines. In the health courses to classes of high school students—the premarital group—public health physicians and nurses are in a position of unequaled vantage for promoting mental health. While carrying out their routines of prenatal and postnatal care and conducting well baby and preschool clinics, they are in a most strategic position for recognizing and correcting conditions that are mentally unhygienic as well as those that are physically detrimental. The object of our mental health program is to devise ways and means of making the most of such opportunities.

THE DEMONSTRATION PROGRAM

Our plan for a mental health demonstration program to be tied in with the routine activities of a local health department includes four principal lines of procedure as follows:

1. A demonstration psychiatric and mental hygiene clinic, serving the county
2. A special program of training in psychiatry and mental hygiene for the regular public health personnel of the county, including:
   a. A short didactic course in the fundamentals of psychiatry
   b. Demonstration of problems at weekly staff conferences by use of clinic cases
   c. Routine individual and group conferences of public health nurses with a case work supervisor
   d. Joint visiting in the field by public health and psychiatric personnel
3. Psychiatric education of other professional groups
   a. Practising physicians of the community
   b. School teachers of the county
4. Community education through:
   a. Talks to Parent-Teacher Associations and other lay groups
   b. Newspaper articles

Part of this program has been put into effect during the past year. The separate phases of the program and accomplishments to date will be discussed

as each of the procedures is presented.

Demonstration Clinic — Our knowledge of case material, our contacts with local agencies and especially the well established working arrangement with the local health department and the practising physicians of the community, were used to provide a source of cases for this clinic. The clinic was organized and planned to conform to accepted standards for psychiatric and mental hygiene clinics, utilizing the specialized personnel of the study to provide essential clinical services. The Director and Consultant furnish clinical psychiatric services; one of the nurses with special training functions as clinical psychologist; and all of the nurses function as psychiatric social workers, with the one accredited by graduation from a school of psychiatric social work serving as case work supervisor.

It was arranged so that approximately the same amount of time should be given to clinic appointments as would be available if the clinic were part of a travelling unit spending one day per week in the county. This amount of clinic service represents the absolute minimum required to carry on work of the desired quality. Incidentally this conforms to the policies and methods of the Bureau of Mental Hygiene of the Connecticut State Department of Health, which have been described by Cunningham.[9, 10] Actually, during the first year of our clinic's operation, there have not been enough acute or "active" cases referred to provide the maximum case load that could be handled by a clinic operating on a one day per week basis. Advantage was taken of the extra time available to carry on follow-up studies of as many of the post-psychotic individuals as could be obtained and brought to the clinic. The statistics on the first 12 months of the clinic's operation are given in Table 2.

In addition to the considerable number of inactive cases admitted to the clinic, other atypical features are noted in the large number of patients with convulsive disorders and the small number of children of school age. Both of these facts are logical consequences of the situation. As the clinic service becomes better known and well estab-

TABLE 2

Classification of Cases Admitted to the Demonstration Clinic During the Period October, 1940–September, 1941, by Age

Classification	Total Cases	Age in Years				
		0–4	5–14	15–24	25–49	50–99
Total cases	94	5	19	15	35	20
"Active" Cases						
Psychotic, pre-psychotic, post-psychotic	23	..	..	1	13	9
Psychoneurotic	15	..	..	2	7	6
Psychopathic personality with conduct disorder	4	..	..	1	3	..
Epileptic *	16	1	4	7	2	2
With personality and behavior problems of childhood	6	..	6	..	..	..
Mentally retarded †	5	1	3	1	..	..
With organic conditions, handicapped, miscellaneous ‡	15	3	6	2	3	1
"Inactive" Cases						
Post-psychotic	10	..	..	1	7	2

* Includes all cases of idiopathic epilepsy (except for 2 classed as post-psychotic) and other cases (including 2 mentally retarded) in which convulsions were the outstanding complaint.

† Includes all mentally retarded individuals not classified in other categories; in most instances cases referred for diagnosis. Includes mongolism.

‡ Includes cases of tic and habit spasm and of cerebral palsy, with or without mental retardation and/or convulsions.

lished a greater variety of cases, and a larger number of cases presenting minor problems, will be referred. It has been easy to obtain the cases with convulsive disorders because in such cases we have an example of a condition to which little stigma attaches and in which the disorder is quite objective.

On the whole, the results obtained with the clinic have been gratifying. It provides the county with facilities for prevention and treatment which, in our opinion, are at least the equal of those afforded by established services functioning in rural areas elsewhere. Moreover, the community is learning to take advantage of the services offered.

Personnel Training Program — The need for more undergraduate training in psychiatry and mental hygiene for both medical and nursing students is generally recognized. In instituting any program of mental health work in the average community, one of the requisite first steps is to compensate for the deficiencies of personnel training which have existed in the past. Hence, our early effort to supply postgraduate training in some manner necessarily took precedence over practically all else. The program was begun with a didactic course in the fundamentals of psychiatry which was presented by members of the study personnel. In six evening sessions, supplemented by the reading of recommended material which had been provided, the physicians and nurses of the health unit were given a sound though brief introduction to the subject. Following this, clinical teaching was begun through the medium of the regular staff conferences. At these weekly conferences all members of the medical and nursing personnel of the county health department have attended regularly. They hear case histories presented, patients interviewed, and discussions of diagnosis and treatment by the psychiatric personnel. To date this type of instruction has been well accepted and has apparently furnished a most stimulating and educational experience for the public health workers.

To supplement the teaching program described above and to give the nurses instruction in the technics of case work, an individualized approach to people, we have inaugurated a system of individual and group conferences, with the case work supervisor of the study serving as consultant. Once each week individual conferences are scheduled with each nurse of the local health department. These interviews enable the nurses to bring up for discussion cases which they encounter in their routine work and which seem to present mental health problems. The case work supervisor, through her suggestions and comments, attempts to stimulate more study of the cases presented and to guide the nurses to a better understanding of each individual situation. Suggestions as to management are given, and the progress with each case is followed from week to week. Every two weeks there is a group nursing conference for the discussion of special problem cases of interest and of educational value to all. The nurses are encouraged to do collateral reading, with particular attention being given to the selection of reading materials and interpretation of their contents. In addition to the scheduled conferences, the case work supervisor is available daily for informal discussions without special appointment.

The results of these conferences to date have been highly satisfactory. While they have brought out the need for more psychiatric education of public health officers and nurses in their undergraduate and postgraduate training, the interest shown has indicated that much can be accomplished by practical field work of this sort. The use of clinical material is a distinct advantage in the training program.

Education of Other Professional Groups—There has been little time to carry on a formal program under this heading. Physicians and teachers of the community are well acquainted with the project; there have been many contacts between them and members of the study and local health department personnel, and a good deal of coöperative and consultant work on special cases has been carried on. Considerable material of an educational nature has been presented during the past years, but without any attempt at a formal program of psychiatric education. From time to time papers have been read before the county medical society on various phases of the work of the study and on special topics in the field of psychiatry. Similarly talks on mental hygiene have been made before teacher groups. The present plan is to proceed with an organized program for the presentation of psychiatric material to both physicians and teachers. The possibility of a didactic clinical course for the local physicians is being considered. As soon as possible it is planned to establish a regular program in coöperation with the teachers. Such a program would probably include as its main feature periodic meetings or conferences with the teachers; it would be carried out along much the same lines as the program in a rural Massachusetts county, recently described by Abbott and Gardner.[11] It is our opinion that physicians and school teachers generally are interested in problems of mental health and that an educational program following conventional lines will succeed in almost any community, providing tact and good judgment are used and the general methods are adapted to the individual locality in question.

Community Education—Here again conventional lines would be followed. To date we have not been able to undertake any formal program. Talks to Parent-Teacher Associations and similar organizations and regular newspaper articles of elementary content on mental health topics would be the chief media of approach. The fact that all members of the medical and nursing personnel of the local health department are already regarded as leaders and teachers is quite naturally an asset in any such program of educational work.

PLANS FOR THE FUTURE

It no longer seems necessary to belabor the point of the responsibility of public health agencies for participation in work for better mental health. Vogel[12] has recently treated this subject in a most convincing fashion and has outlined recommendations for state health departments. Our local program has been devised with the idea of eventually extending it over a wider area, first perhaps to a circuit of several counties that could be handled by a single travelling psychiatric unit, and eventually to all counties having full-time local health departments. While such a program will inevitably entail additional expenditures, it should be pointed out that the federal government, through the U. S. Public Health Service and the Children's Bureau, is assisting in the financing of mental health programs. There are funds already available from the agencies mentioned which may be used for purposes of a mental health program of the sort we have in mind.

There is no doubt that all interested community agencies should take a part in any program for mental health. However, it is our opinion that, in rural areas where there is not already an established specialized agency rendering psychiatric and child guidance services, the local health department is the logical agency through which this and other preventive programs should be undertaken because:

1. It is a fundamental principle that psychiatric work should be carried on under medical supervision.

2. The local health department, where situations comparable to that in Tennessee obtain, is an outstanding social agency and through its general services comes in contact with cases from birth to death.

3. The local health department's work is closely coördinated with that of the school system. Obviously, the school population provides one of the most fruitful fields for work toward mental health.

4. Through its close working relationship with practising physicians, the health department has opportunities for working with cases that might be denied other agencies.

5. The health department has the advantage of offering a generalized service. This makes it possible to incorporate a psychiatric and mental hygiene clinic with the other activities of the department, thus avoiding the stigma that sometimes attaches to a separate and distinct unit.

6. Through its extensive coverage of a county and its contacts with the majority of the families, the local health department can serve as a valuable adjunct to the state mental hospital system. In situations where that system lacks adequate social service facilities, the health department can compensate for the deficiency.

7. The health department is the ideal agency to provide local headquarters for a travelling clinic unit.

8. The local health department can render the suggested psychiatric and mental hygiene services more economically than can any other agency.

SUMMARY

1. The mental health problems confronting the community are enumerated.

2. A practical demonstration program of mental health activities, coördinated with and integrated into the activities of a local health department, is outlined.

3. An account is given of a field experiment in the provision of psychiatric and mental hygiene clinic facilities through a local health department.

4. A practical method of providing much needed postgraduate instruction in psychiatry and mental hygiene for public health medical and nursing personnel is described.

5. A plan is outlined for the extension—through the local health department—to other groups in the community, of a program of education for the promotion of better mental health.

6. The possible application, over large rural areas, of the procedures being demonstrated is discussed, and the advantages of mediating mental health services through the local health department are enumerated.

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Thiamin Content of Milk in Relation to Vitamin B_1 Requirement of Infants*

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THE thiamin content of milk is important since it is the only natural source of vitamin B_1 available to the young infant. There are, however, complications which make thiamin assays on milk difficult. With biological assays, if the curative technic is used, it is difficult to get the depleted rats to consume the quantity of test dose that is necessary; if growth technics are employed, the basal diets must be completely adequate except in thiamin so that the resulting growth is due solely to the thiamin content of the test dose, but milk doses introduce the problem of added caloric ingestion which may affect growth. With thiochrome assays on milk the problem is also complex, since thiamin may be lost if proteins are precipitated, and the absorption and elution of the vitamin from the decalso column may not be quantitative. In our study we have employed all of these methods and are also investigating the application of the fermentation technic. The results reported here are based chiefly on growth assays, since thus far these have proved to be the most reliable.

Chart 1 compares results for pasteurized milk, boiled milk formulae, evaporated milk, and breast milk. The formulae were prepared from pasteurized milk which had been boiled for 3 minutes. The average thiamin content of these formulae was 24 micrograms per 100 ml. of milk, in contrast to the average of 26 μg. obtained per 100 ml. of pasteurized milk. The boiling for 3 minutes thus had caused a loss of 8 per cent in the vitamin content. The range of thiamin for these pasteurized and boiled milks was from 18 to 35 μg. per 100 ml. The evaporated milks tested had a slightly lower range from 13 to 27 μg. of thiamin, with an average value of 19. The data for these evaporated milks have been calculated on the basis of reconstitution with equal parts of water to make comparisons easier between the different types of milk. The breast milks tested came from 17 different women. The thiamin content was surprisingly low, ranging only from 3 to 18 μg. per 100 ml. of milk, with an average of 9 μg. There may be several explanations for the low thiamin content of human milk. In the case of one woman whose milk was tested on four different occasions the milk consistently had high thiamin except during one week when she was ill and her milk contained only 20 per cent of its previous thiamin value. Diet is undoubtedly the most important factor in influencing the thiamin content of breast milk. To support this theory was the observation of a trend toward lower values for thiamin for some of the women who had but limited knowledge of fundamental principles in nutrition. Some preliminary studies have been done with supplementary thiamin for these women, but one week of increased intake has not been enough to

* Read before the Food and Nutrition Section of the American Public Health Association at the Seventieth Annual Meeting in Atlantic City, N. J., October 14, 1941.

VARIATIONS IN THE THIAMIN CONTENTS OF MILKS

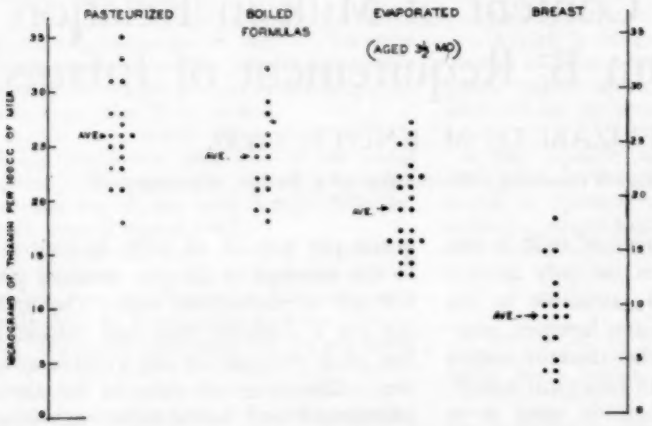


CHART 1

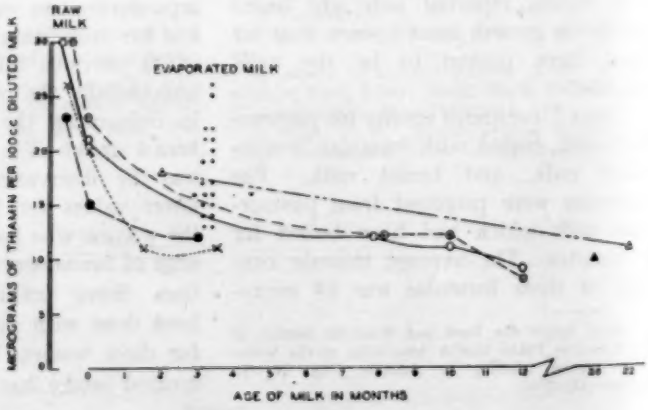
produce increased excretion of thiamin via the mammary glands. It is presumable that cow's milk is richer than human milk in thiamin because the cow can utilize thiamin which has been synthesized in her rumen.

Chart 2 shows in more detail the effect of processing on the thiamin content of evaporated milk. Raw milks and their corresponding evaporated milks were sent by special delivery direct from the factory to the laboratory and were assayed simultaneously. Destruction of vitamin due to the processing of evaporated milk ranged from 23 to 35 per cent for the four lots of milk tested. Further loss of thiamin occurred during storage of these evaporated milks. The amount of destruction varied with different milks, but reached 50 per cent after 1 year for two milks, although another milk showed loss of one-half its original vitamin content in 2 months' time. This destruction upon storage is presumably more rapid during the first few months and eventually reaches an equilibrium. The rate varies for each lot of milk and is roughly indicated by

THE THIAMIN CONTENT OF MILK

EFFECT OF EVAPORATION AND STORAGE

CHART 2



the lines connecting the separate assays on the chart. It must be noted, however, that the twenty-five commercial samples of milk representing seven different brands, in general had higher contents of thiamin than the four lots stored in our laboratory. The age of these commercial milks was approximately 3½ months, which is an average elapsed time between the manufacture and retailing of evaporated milk. The destruction of thiamin in evaporated milk is influenced by the degree and duration of heat during processing, the temperature during storage, and the pH of the milk. That this destruction is a simple cleavage of the thiamin molecule into pyrimidine and thiazole was shown when one sample of old evaporated milk was assayed for pyrimidine as well as thiamin content and total values found which were identical with the vitamin B_1 content of the original raw milk.

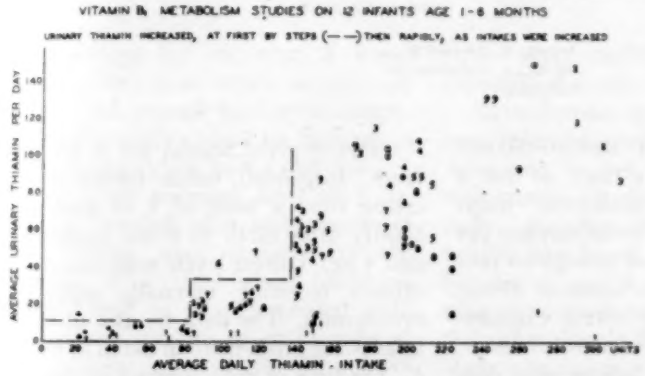

VITAMIN B1 METABOLISM STUDIES ON 12 INFANTS AGE 1-6 MONTHS
URINARY THIAMIN INCREASED, AT FIRST BY STEPS (— —) THEN RAPIDLY, AS INTAKES WERE INCREASED
AVERAGE URINARY THIAMIN PER DAY
AVERAGE DAILY THIAMIN - INTAKE

CHART 3

In order to determine the significance of the thiamin content of these different types of milk, the metabolism of thiamin in the infant's body has been studied. Chart 3 summarizes the results of urinary excretion of thiamin when the infant has been given different levels of supplementary thiamin. Each dot on the chart represents data obtained during a 5 day period. In all, 12 healthy infants were studied for a total of 104 periods. The average daily amount of thiamin excreted in the urine has been plotted against the level of intake for that metabolism period. At low levels of intake the infants excreted consistently low amounts of thiamin. At 80 units or more daily intake the thiamin appeared in the urine in larger quantities. Above 140 units of daily thiamin, the vitamin was excreted in still larger quantities, and it was apparent that more was being fed than the infant needed. From these data we might conclude that an intake of about 80 units of thiamin meets the infant's immediate needs and above this level of intake excess begins to appear in the urine. We do not know, however, whether or not 80 units represents the optimum thiamin requirement for the infant.

Another approach to the problem of requirement has been made by studying blood cocarboxylase levels. Since cocarboxylase is the functioning form of thiamin in the body cells, its estimation in blood cells should give an indication of the supply throughout the body. After several hundred determinations, during healthy as well as pathological conditions, we have concluded that about 5 $\mu g.$ of cocarboxylase per 100 ml. of blood is a normal value for health. Chart 4 shows the correlation between blood cocarboxylase, dietary thiamin, and symptoms in an adult.

CORRELATION OF BLOOD COCARBOXYLASE WITH DIETARY THIAMIN AND SYMPTOMS IN AN ADULT

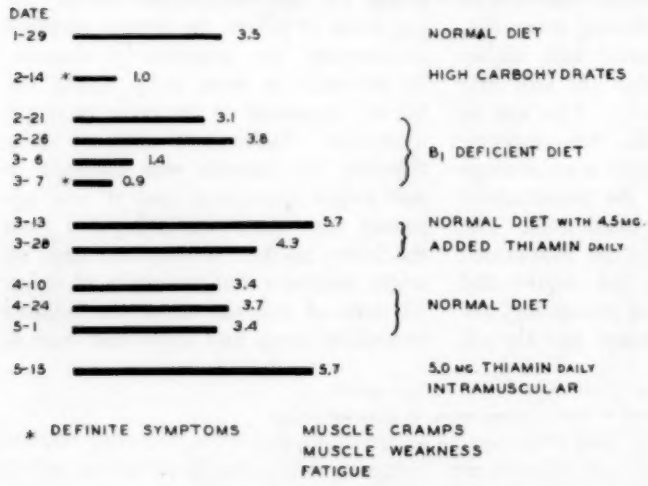


CHART 4

This person does not absorb thiamin well from the digestive tract, so that a normal diet gives subnormal blood levels. The 3.5 μg. of cocarboxylase per 100 ml. of blood is not enough to protect against the sudden strain of illness, strenuous exercise, or excess carbohydrate diet. Symptoms of muscle cramps, muscle weakness, and fatigue were definite when the blood vitamin dropped to 1.0 μg. A feeling of well-being was outstanding when blood levels had been raised above 5.0 μg. by use of supplementary thiamin.

Chart 5 gives results for a few infants. In general, values tended to decrease from a level of 5 or more μg. shortly after birth to levels between 3 and 4 μg. Lowest levels were found for infants receiving manually expressed breast milk. The data for two of these infants are given more in detail in Chart 6. The type of milk, amount of thiamin intake, and age of the infants are indicated across the bottom of the chart. On evaporated milk formulae the blood decreased from an initial level of more than 6 μg. to 4.5 and 3.8 μg. Breast

INFLUENCE OF TYPE OF FEEDING ON BLOOD COCARBOXYLASE

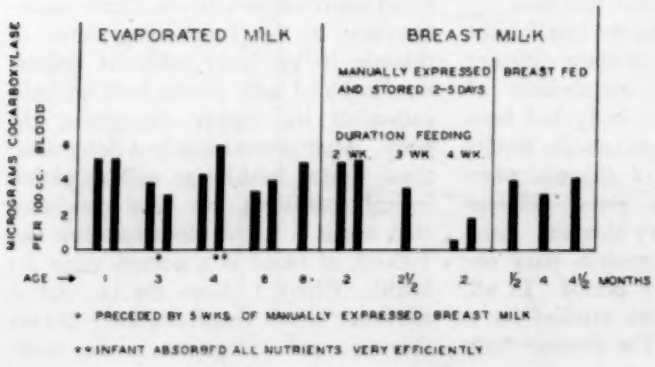

MICROGRAMS COCARBOXYLASE PER 100 CC. BLOOD
EVAPORATED MILK
BREAST MILK
MANUALLY EXPRESSED AND STORED 2-5 DAYS
BREAST FED
DURATION FEEDING
2 WK. 3 WK. 4 WK.
0
2
4
6
AGE → 1 3 4 6 8 2 2½ 2 ½ 4 4½ MONTHS
* PRECEDED BY 5 WKS. OF MANUALLY EXPRESSED BREAST MILK
** INFANT ABSORBED ALL NUTRIENTS VERY EFFICIENTLY

CHART 5

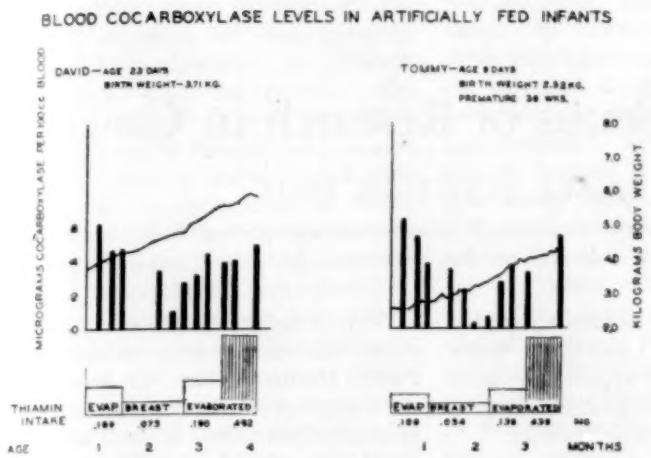


CHART 6

milk feedings for the next 5 weeks brought the values down to 1.0 and 0.5 μg. Subsequent feeding of evaporated milk slowly caused an increase in blood cocarboxylase to 4.4 and 3.6 μg., but the more optimum level of 5 μg. was only reached after supplements of pure thiamin were included in the formulae. The infant whose blood responded best to his evaporated milk feedings received 190 μg. or 63 units of thiamin daily in the milk. This level of intake is not far from the level of 80 units at which excess thiamin began to be excreted in the urine. It thus appears that, although intakes of approximately 200 μg. in the present study could not maintain the 5 μg. of cocarboxylase which we have come to consider optimum, the amount of vitamin B_1 furnished by milk formulae apparently did produce the fairly satisfactory level of 3–4 μg. This level is adequate unless some unusual fever or metabolic strain increases the metabolic needs for thiamin. The milk thiamin for artificially fed infants can therefore presumably carry the burden of thiamin requirement for the young infant until cereals and other additional foods are included in his diet. It must be emphasized, however, that during times of stress supplementary thiamin will be desirable as a safety factor.

An additional comment is necessary concerning infants receiving breast milk. According to our asasys this type of milk cannot furnish 200 μg. of thiamin daily. Nursing infants studied have usually had blood cocarboxylase levels between 3 and 4 μg., comparing well with those receiving milk formulae. On the other hand, those infants of our study receiving manually expressed breast milk showed lower levels of blood cocarboxylase. It may be possible that the thiamin content of the breast milk was reduced during the 2–4 days of storage before it could be fed. We know that cleavage of thiamin occurs more rapidly in more alkaline solutions. The average pH for our breast milk samples was 8.1, in contrast to values of 6.8 for pasteurized milk and 6.2 for evaporated milk.

Further studies on the thiamin content of breast milk and its adequacy for infant feeding are now in progress at the University of Chicago.

Additional data available as this paper goes to press show breast milk thiamin values to be higher than our earlier work indicated. Average thiamin content for women successfully nursing young infants was 20.1 μg. per 100 ml.

Present Status of Research in Cancer*

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I SHALL attempt to discuss a complex subject in a very short time. Some of the statements will appear dogmatic, simply because it is impossible to present all of the supporting evidence.

In order to have a proper perspective, let us go back about 40 years to the beginning of experimental cancer research. At that time the best medical textbooks confined the discussion of cancer to a description of the gross pathology of tumors, to a rough classification of cancers according to tissues and cell types involved, to a crude outline of the growth and spread of cancer in the body, and to various speculations on the cause of cancer, such as Virchow's conception of cancer as a disease of cells caused by chronic irritation, or Cohnheim's hypothesis, according to which certain cells during embryonic development lose their physiological relations to other cells and later on for unknown reasons become malignant. Some physicians still held to the view that cancer is a disease of the blood, and others that it is due to a specific infectious microörganism. The possibilities of x-rays and radium in treatment had barely been recognized. There were no special laboratories and institutes for the experimental study of cancer. Statistical data on cancer mortality and incidence did not exist for the United States.

What is the present situation? From recent statistical studies of the U. S. Public Health Service, we know that the crude cancer mortality rate has been gradually increasing, a fact which is largely accounted for by the increase in the average longevity resulting from a better control of other diseases. We do know that the risk of cancer increases with age. The same is true of the mortality from spontaneous cancer in inbred strains of mice. Here, also, the mortality from cancer of the breast, lung, or liver increases rapidly in middle and old age.

Studies on human cancer incidence indicate that there are about 3 living cancer patients for each death from cancer. On this basis there are now in this country 450,000 persons with cancer. It is quite obvious that the importance of cancer as a major cause of death will continue to increase, unless better control measures are discovered by research.

What has cancer research accomplished until now?

Beginning in a small way, but gaining momentum, especially during the last decade, there have been discovered an enormous number of facts. The significance of some of these facts has become clear, as I shall show presently. To begin with, exhaustive research on cancer in mammals has conclusively demonstrated that cancer is not caused by a specific organism. In other words, cancer is not of an infectious nature, as, for instance, is tuberculosis. This

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should finally allay all fear on the part of members of the patient's family of contracting the disease by contact with the patient. On the other hand, it is well established that cancer can be transmitted from one animal to another under special conditions, *i.e.*, by inoculation of living cancer cells from one mouse into another of the same hereditary constitution. However, these cancer cells fail to proliferate progressively in mice with a different heredity or in other species of animals, as, for instance, rats, guinea pigs, or rabbits. Furthermore, all attempts to produce cancer in animals by the inoculation of human cancerous tissue have failed. Moreover, we know that the susceptibility for spontaneous cancer in different inbred strains of mice differs for different types of cancer. Thus we have mouse strains with a high or low incidence of cancer of the breast, lung, or liver. We conclude, therefore, that cancer in man and other mammals is a disease of the cells of the body and that the disease is highly specific for each animal species and for each cell type.

What do we know about the conditions under which normal cells become cancer cells? There is irrefutable evidence that excessive exposure to x-rays, radium, or ultra-violet light can produce cancer. I recall to your attention the deaths from cancer of pioneer radiologists and of the girls who were engaged in the manufacture of luminous watch dials. From a practical viewpoint it is, therefore, important to protect the personnel in radiological clinics and x-ray operators in industry against excessive doses of x-rays or radioactive material. A recent survey of clinics by the National Cancer Institute has demonstrated the practicality of reducing exposure to x-rays and radium to 0.1 roentgen or less per day by proper construction and handling of apparatus. Similarly, we can prevent certain "occupational cancers" which are caused by chemicals. For example, β-Naphthylamine is extensively used in the manufacture of aniline dyes. Experiments on dogs have shown that naphthylamine causes cancer of the urinary bladder, which is prevalent in dye factory workers.

To coal soot and coal tar were attributed cancer producing properties for 140 years, until in 1915 it was proved that long continued application of coal tar causes skin cancer in rabbits and mice. This important discovery made possible the prevention of skin cancer in workers handling coal tar on roads and in industry. Later, the active chemical in coal tar was isolated in pure form as 3,4-benzpyrene. This was followed by the recognition of the cancer producing properties of some 250 chemicals. One or two of these chemicals were formerly used for coloring butter and are known under the common name "butter yellow." Some of these chemicals have been of great value for the production and study in experimental animals of almost every kind of cancer known to occur in humans. This work has led to the following conclusions:

The injection of minute amounts of the powerful chemicals into the tissues of susceptible animals produces cancer, often within a few months. This is not necessarily accompanied by chronic irritation of the tissues. Once cancer has been produced, the presence of the chemical is no longer necessary for the continued growth of the cancer. In other words, the chemical is needed only for the transformation of normal into cancer cells. Most of the cancer producing chemicals are foreign to the animal body. However, it can be assumed with considerable justification that the naturally occurring cancers in human beings and animals may be caused by chemicals produced within the body. In fact, we know that large doses of female sex hormones can induce

cancer of the breast in animals. The discovery of other cancer producing constituents of the animal body is now one of the most important tasks of cancer research. Success may well lead to the effective prevention of certain types of cancer. Furthermore, animal experimentation, as well as clinical study, has firmly established the view that cancer is not a single disease but a group of diseases with some common characteristics.

Radium, x-rays, ultra-violet light, and chemicals all can produce cancer of the skin, yet these agents do not seem to have another property in common. If we knew how any of these agents cause the transformation of normal into malignant cells, we obviously should have a key to the causation of cancer. This problem is being studied.

In order to comprehend why cancer kills, we must try to explain why cancerous tissue grows progressively and why it invades and destroys normal tissues. A satisfactory explanation of this question may lead to more effective curative methods. Work at the National Cancer Institute has shown that these problems can be attacked successfully by the application of biochemical knowledge and methods. We have found that the growth rate of certain cancers in animals can be strikingly slowed up by maintaining the animals on diets partly deficient in essential components, such as certain amino acids or vitamins. The time may come when it will be possible to devise diets which will control the cancerous growth in patients.

Very important studies are under way to detect differences in the chemical composition and the activities of enzymes between cancerous tissues and the normal tissues from which the cancers are derived. Already striking differences in the activities of certain enzymes have been discovered.

Quite recently we have found that a cancer of the liver transplanted under the skin will cause a profound reduction in the activity of the enzyme catalase in the supposedly normal liver of the animal. This proves that the growth of the cancer strikingly modifies the biochemistry of a tissue far removed from the cancer. In other words, the effects of the cancer are not confined to local effects, but evidently there are also definite manifestations involving the body as a whole. In these respects cancer research is entering rapidly into a stage similar to that which nutritional diseases occupied some 35 years ago, just before the discovery of the vitamins and enzymes which are so important for normal nutrition and for the prevention of nutritional diseases.

I shall be content if this paper has convinced you that cancer research has already accomplished a good deal and that further intensive work will be increasingly productive of new knowledge. Health officers are, of course, interested in practical applications. The whole history of medicine shows, however, that what at a given time has no practical use may be found useful later on. You also can contribute to cancer research by improving the reliability and usefulness of cancer death certificates. Such data are of great value for statistical studies.

In conclusion, let us never forget that cancer in time of peace or war is one of the most ruthless killers, accounting yearly for more than 150,000 deaths in our country. The misery caused to the patients and their families is enormous; so is the cost of medical care. I am confident that research will gradually solve the cancer problem.

Education in Nutrition as Part of the Maternal Health Program*

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THE main effort in any nutrition program is to bring about desirable changes in food buying, preparation, and consumption. All efforts in staff education and coöperation with other agencies are directed toward this one goal: to have the newer knowledge of nutrition reach down to every family in the community. But it is well known that marked sectional differences in food customs exist in the United States and that in some sections large groups of people adhere closely to a limited food pattern with a definitely local character. Thus the majority of the citizens of New Mexico have a fixed traditional dietary.

Before attempting to change such traditional food patterns the nutritionist will need considerable self-education. This is especially true if she has not previously lived in the state where the pattern prevails or has had no experience in a state with similar customs, needs, and problems. She must become acquainted as rapidly as possible with the different food patterns among her various groups. She must find out what contributions the traditional foods make to the total daily dietary. She must know how these food patterns measure up to the present-day nutrition standards. She must know how the foods are traditionally prepared and determine whether or not these methods rob the foods of their nutritive value. She must learn something about the physical status of the people. From information available from records of maternity service clinics, well child medical conferences, school children's clinics, selective service examinations, surveys, etc., she should try to ascertain what are the outstanding nutritional needs. She should acquaint herself with family, community, and state resources in order to be practical in her suggestions for change or supplementation.

But this is not all the information she needs. She must acquaint herself with the attitude of the general public toward the food habits of the cultural groups living in their midst. She needs to consider the families themselves—their attitudes, prejudices, and superstitions. She needs to know what previous work has been done with the people. Only then is she prepared to work effectively.

TEACHING THE MIDWIVES

New Mexico was first colonized by the Spaniards over 400 years ago. Their descendents are called Spanish-Americans as distinguished from the later settlers, who are called Anglo-Americans. This seems an unusual situation in the United States, but topography of the country and the prevailing poor roads have tended in the past to isolate

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the Spanish peoples, who have therefore remained a distinct cultural group. Because of this and the consequent lack of medical facilities, most of our Spanish mothers were cared for by untrained midwives. For the past 4½ years the maternal and child health plan in New Mexico has included a training program for the midwives. When a nutritionist was added to the state staff, the midwife consultant asked her to conduct some nutrition demonstrations as part of this training program.

There are almost 800 midwives in New Mexico, most of them Spanish-Americans, speaking Spanish. The midwives are often leaders in their villages and they have been the ones who carried on the old traditions and customs, especially those concerning the care of mothers. In regard to food, some of their practices have been good —others not. For instance, for the first few days after delivery many of the midwives practically starve the mothers. Since the midwives are such influential people, we felt that if we could convince them of the importance of desirable food practices for the expectant and nursing mother, we could more easily effect other necessary changes.

Nutrition demonstrations for the midwives have been held in many New Mexico villages. The midwives are asked to bring their patients to the meetings whenever possible. The public health nurse also attends, and thus has an opportunity to observe a demonstration in the teaching of nutrition. The nurse asks questions and contributes to the discussion along with the midwives and expectant mothers. These demonstrations have proved an effective way for the nutritionist to work in the field and learn at firsthand some of the nutrition needs and problems of New Mexico. They have given her an opportunity to come into intimate contact with the people of the state. They have also given an effective technic in staff education in that they show the public health nurse how to make practical application of nutrition knowledge. One nurse, discouraged because of the economic conditions existent in her district, said: "Frankly, before we had the nutrition classes for the midwives, I didn't think we could do anything in nutrition, even though we recognized it as one of our major problems." I have subsequently visited her district several times. The last time it was to work out a demonstration nutrition unit with the nurse and one of the teachers in a one room school. Incidentally, both nurses in this district make nutrition a regular part of their prenatal and postpartum home visits, as well as a part of their school health program.

ADAPTING THE PROGRAM TO THE TRADITIONAL FOOD HABITS

The response to this teaching program has been most encouraging. We have attempted to take the traditional food pattern of corn, beans, chili, and tortillas and point out to the mothers and midwives the good features of the diet. For instance, nothing pleases them more than to know that pinto beans are a good blood building food or that chili is an excellent food. In suggesting supplementation such as milk, cheese, etc., we have been able to point out to them that these foods are not new to the Spanish diet; that they used to be in the old Spanish diet when every family had a cow or goat and a garden. Some of the older midwives can remember when this was so.

We usually emphasize only one particular reason why these foods are necessary. For instance, we stress milk because it is the best bone and tooth building food we have. We point out that the pinto beans they eat every day give them some bone and tooth

building material, but that if the expectant or nursing mother were to get all of the bone and tooth building food she needs (that is, the equivalent of that in one quart of milk), she would have to eat from nine to eleven cups of cooked pinto beans every day. It is not unusual for many of our families to have pinto beans for breakfast, dinner, and supper. We do not discourage this, because we have economic obstacles in obtaining the desired amount of milk. However, the idea that they should eat nine cups of cooked beans every day to get the necessary amount of bone and tooth building material appeals to their sense of humor. Even the bean lover sees the impossibility of consuming that many beans every day.

In our attempt to get more milk into the diet we can often find a native dish which can be used for this purpose. Atole is a traditional Spanish dish and one of the first foods given to the mother after delivery. It is a thin cornmeal gruel made from the blue cornmeal. It used to be made with milk, but nowadays it is more often made with water. We are encouraging the mothers and midwives to use milk again.

Another one of our nutritional problems is that of helping our families with a year-round food supply of vitamin C. Clinic examinations show that during the late winter and early spring months we have vitamin C deficiency. We have plenty of vitamin C foods in New Mexico and these foods are well liked by our families. Chili is an excellent source of vitamin C when fresh. During the summer it is eaten fresh, but most of the year it is used as a dried powder for flavoring. Many of our families are learning through the Extension Service, Vocational Home Economics, and the Farm Security Administration to can their chili and thereby have it as a source of vitamin C throughout the winter.

Cabbage is another favorite vitamin C food, but here our problem lies in teaching the newer methods of cooking vegetables without taking away the traditional flavor. It is usually cooked in large amounts of water for a long time, much as our grandmothers used to cook it. The cooking water is thrown away and then the cabbage is fried with onions and chili. It is questionable whether cabbage cooked in such a way has much food value by the time it is served. We are gradually teaching our families to cook the new way and to use the vegetable water. We suggest and demonstrate to them frying the onions and chili separately and then adding them to the cooked cabbage or other greens the same way we add butter to our vegetables.

THE NEED FOR DEMONSTRATION

Just to tell families these things is not the most effective way to teach nutrition. We need to show them. We need to develop visual materials which will emphasize teaching points. For instance, an x-ray picture showing the formation of the tooth in the infant's jaw does more to get the idea over that such growth takes place before birth than all the talking in the world. In giving explanations, vocabulary is very important. It is doubly important when the members of the class speak a different language from the teacher. All explanations should be in as nontechnical language as possible.

SCOPE OF NUTRITION WORK IN NEW MEXICO

This year with two field nutritionists on the staff we hope to develop some nutrition classes for fathers. Many of our public health nurses have found that it is the father of the family, especially among the Spanish-Americans, who makes the decisions, holds the purse strings, and does most of the buying. It is essential in any family

teaching program to take the fathers into consideration. It is also necessary to work with that member of the family who really makes the decisions.

The nutritionist cannot give too much credit to the work of the public health nurses and doctors. They have preceded her in the field of public health by a good many years. By constantly rendering needed services to families and communities they have won acceptance for the whole public health program. This is probably the greatest single factor which helps the nutritionist in her public health efforts.

Nutritionists on the state staff can function most effectively by serving in an advisory or consultant capacity. The direct service given should have staff education as its main purpose. Where the family is concerned, the nurses of necessity have to do most of the nutrition teaching and only in so far as the specialist in nutrition is able to help the nurse apply the vast knowledge of nutrition in solving the nutritional problems she meets daily in the field, can an effective nutrition education program in public health be built.

SUMMARY

Nutrition education is an important phase of the maternal and child health program. Its main objective is to improve the nutrition of every family and individual in the community. Since the number of nutritionists working in local health units is limited at this time, the responsibility of teaching nutrition to families falls upon the nurse. The nutrition consultant on the state staff then has the responsibility of helping each nurse in the state solve her local nutrition problems in a practical way. In New Mexico we feel that our nutrition work with the midwives has been an effective way of demonstrating nutrition teaching to the nurses. In this work particular attention was paid to the traditional food habits of the families served.

Stabilization of Chlorine in Water*

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IT is accepted practice to disinfect water with chlorine, using liquid chlorine, sodium hypochlorite, or calcium hypochlorite. It is generally believed that these various forms of chlorine give exactly the same results, the choice being a matter of convenience in application. The writers have been unable to find any information in the literature to the contrary.

The following case reports are presentations of observed sequences in the treatment of swimming pool waters with various forms of chlorine, or the application of the same form of chlorine to various types of water as it pertains to the hardness, alkalinity, and pH of the water.

Prior to the fall of 1931, the Michigan State College pool was supplied with a well water of 500 p.p.m. hardness and a pH of approximately 7.6. Disinfection was effected with liquid chlorine. Chlorine residuals of 0.3 to 0.5 p.p.m. were maintained. The pH of the pool water was approximately 7.6. The sanitary condition of the pool was excellent at all times. In the fall of 1931 the pool was supplied with Zeolite-softened water. After several weeks of operation the pH dropped to 5.5, chlorine residuals were zero, and the pool water was badly contaminated. The pool was emptied and refilled with hard water. The pool operated satisfactorily, as it had previously with hard water. The hard water was continued and the problem was dismissed without further thought, and no further difficulty arose.

In the summer of 1940, when the Moore's Park outdoor pool in Lansing was opened for use, a lime-soda treated water was used and a similar experience resulted. This pool has a capacity of 225,000 gallons. The water is recirculated through pressure filters every 8 hours. Formerly a well water of 500 p.p.m. hardness was used. The pool was operated at a pH of 7.2 to 7.4, with a chlorine residual of 0.3 to 0.5 p.p.m. During the summer of 1939 6 to 8 lb. of liquid chlorine were used daily. Maximum bathing loads of 225 were maintained, with a daily load of 800 to 1,000 bathers. Only occasional slight difficulty was experienced in maintaining chlorine residuals of 0.3 to 0.5 p.p.m. with bright sunlight. In 1940 the city and pool were supplied with a lime-soda treated water with a hardness of 85 p.p.m. and a pH of 7.6 to 8.6. The pool was operated exactly as before except for the use of softened water. With bright sunlight the pH fell from 8.0 to a range of 5.5 to 3.5. All bacteriological samples showed a high total count and high colon indices. To

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correct the pH, from 150 to 200 lb. of soda ash were added during the course of 2 weeks. During this period the pH would reach 7.1 at night but during the day it would fall to 5.5 despite the added alkali. It was impossible to maintain a chlorine residual in the sunlight. A heavy sludge formed on the bottom of the pool, apparently owing to the excessive use of soda ash. Following this experience, calcium hypochlorite was hand-fed into the pool for a period of 3 days. Chlorine residuals were maintained at 0.3 p.p.m. at the deep end of the pool during sunlight without difficulty. When the pool was again supplied with liquid chlorine it again became unsatisfactory.

Other soft water pools in the state were studied.

The outdoor pool at Midland is hexagonal in shape, with the inlet at the center at a depth of 10 ft. The flow is upward and outward to the edges, where the water flows continuously over a weir and through orifices. The pool has a capacity of 450,000 gal., with a 6 hour turnover and a 12 hour filter rate. The water is river water softened by a lime soda process. The softened water has a hardness of 80 to 85 p.p.m. and a pH of 8.6. At the opening of the 1940 season the chlorine fed was 15 to 20 lb. per day. The chlorine residual in the return line to the pool was 2 p.p.m., and 1 p.p.m. at the center at the surface of the pool directly above the inlet. The residual at the edge of the pool was 0. The pH was below 7.0. One to two inches of dead, burned magnesium oxide was placed on the filter as an experiment to increase and stabilize the pH. The pH increased from 0.2 to 0.4 but this increase was not sufficient to stabilize the chlorine or to raise the pH to the desired range.

Adjacent to this pool is a wading pool. This pool receives water from the larger pool. The overflow from the wading pool is discharged to the sewers. Calcium hypochlorite is fed by hand in sufficient amounts to maintain 0.5 p.p.m. in the pool. No difficulties were experienced with this pool.

After observing the results of the hypochlorite in the wading pool and in the Moore's Park pool, 50 lb. of lime were placed in the mixing chamber of the large Midland pool. The pH increased to 8.0 or above and remained about 7.6 for several weeks without further addition of lime. The chlorine consumption was reduced by half and residuals of 0.2 to 0.5 p.p.m. were maintained at the edge of the pool in sunlight.

Following this experience, the Moore's Park pool at Lansing was treated with 15 to 20 lb. of lime during the course of 2 days. The pH was raised from 5.0 to 7.6. The chlorine consumption dropped from a maximum of 12 lb. to 6 lb. per day and chlorine residuals of 0.3 to 0.5 p.p.m. were maintained throughout the day. Bacteriological samples were satisfactory.

An indoor pool at the Roosevelt High School at Ypsilanti was next examined. This pool has a capacity of 60,000 gal. and is treated with liquid chlorine. The city water formerly had a hardness of approximately 350 p.p.m. and a pH of 7.6. The water is supplied from wells. When the pool was operated with hard water there was no difficulty in maintaining chlorine residuals or in maintaining the pH between 7.2 and 7.6. A small amount of soda ash was used occasionally for pH control following alum applications. About a year ago a softening plant was placed in operation. The softened water has a pH of approximately 8.6 and a hardness of 85 p.p.m. After using the softened water in the pool for a short period of time, the pH dropped below 7.0. At least 1 to 2 lb. of soda ash were required each day to maintain the pH in the alkaline range, generally at

pH 7. It was observed that the chlorine consumption increased materially and that it was virtually impossible to maintain chlorine residuals overnight without continuous operation of the chlorinator. Lime was substituted for soda ash for pH control. Approximately ½ to 1 lb. a week was added to maintain a pH range of 7.2 to 7.6. A considerable reduction in chlorine consumption has occurred since the introduction of lime treatment.

Four indoor high school pools in Lansing were studied. These four pools had capacities of approximately 75,000 gal., with a filter rate of 8 hours. Bathing loads ranged from a minimum of 25 to a maximum of 40, the daily bathing load being 8 classes. Previous to the installation of electrolytic chlorinators, these pools were supplied with hard water of approximately 500 p.p.m. hardness from wells. Liquid chlorine was used for disinfectant. Chlorine consumption in all these pools averaged less than 1 lb. per day. No difficulty was experienced in maintaining a pH range of 7.2 to 7.6. No difficulty was experienced in maintaining chlorine residuals throughout the 24 hours of the day. Bacteriological samples were satisfactory.

In January, 1941, these pools were filled with a lime-soda treated water with a hardness of approximately 85 p.p.m. and a pH of 7.6 to 8.6. The pools were equipped at this time with electrolytic chlorinators, so the pools were being treated with sodium hypochlorite. During the first few weeks of operation, with relatively light bathing loads, it was impossible to maintain a satisfactory chlorine residual in any of these pools. The amount of chlorine used in each case per day varied from 2 to 3 lb. It was observed that, although sodium hydroxide produced by electrolytic chlorinators was being continually fed into these pools, the pH dropped from the initial pH of 7.8 to 7.2 which remained constant. A rise in pH would be expected, inasmuch as little or no alum was being used.

During this period of use, the pool water had a greenish-blue hue, sparkled and bubbled. In the morning, after continuous chlorination throughout the night, tiny gas bubbles were breaking over the surface of the pool, particularly near the inlets. Prior to the entrance of the swimming classes the pool water was crystal clear, with the bottom plainly visible at the deep end. In a few minutes after the bathers entered the water, the water became very milky in appearance and it was impossible to see the tile or the joints of the tile in the shallow end of the pool at a depth of 3 ft. The agitation of the water by the bathers provided additional aeration and broke up the large gas bubbles into finer bubbles and produced a marked turbidity. When the bathers left the pool and the water was undisturbed, clarity was restored in a very few minutes.

Following these observations it was decided to apply lime treatment. Calcium hydroxide solution was applied at a slow rate to the recirculating system on the suction side of the pump, ahead of the filters and chlorinators. The average time of application was approximately ½ hour per 1 lb of lime. After three applications of 1 lb. each, the pH of the pool water increased from 7.1 to 7.6 or slightly above. During the past several months of operation it has been necessary to apply from ½ to 1 lb. of lime per week to maintain a pH of 7.6. Immediately following the initial introduction of the lime with the stabilization of the pH at 7.6, it was observed that the chlorine consumption per day was reduced by one-half.

The use of lime treatment has made it possible in these pools to maintain chlorine residuals at 0.3 to 0.6 p.p.m. and even higher without difficulty. It has been possible to hold residuals of

0.2 to 0.3 p.p.m. throughout the night without operating the chlorinators during this period, which had been impossible before lime treatment was used. The gas bubbles on the pool surface and the milky appearance during use disappeared when lime treatment was used. The color of the pool changed from a greenish hue to a distinct blue.

An outdoor pool, the Richmond Park pool at Grand Rapids, using softened water, was examined. This pool has a capacity of 1,000,000 gal. and a filter rate of 8 hours. Liquid chlorine is used for disinfection. The water is a softened river water with a hardness of 100 p.p.m. and a pH range of 9.0 to 10.0. The chlorine consumption in the pool averages between 15 and 20 lb. per day. This amount would be considered normal consumption for this size pool. No difficulty is experienced in maintaining chlorine residuals in bright sunlight. The stability of the chlorine in this pool as contrasted to the other pools cited in this paper is probably due to two factors—(1) the high pH, and (2) the relatively higher calcium and magnesium carbonate content of the soft water.

SUMMARY

This recital of case reports on swimming pool chlorination shows that in Zeolite- or lime-soda-softened water the use of liquid chlorine or sodium hypochlorite is unsatisfactory, particularly in outdoor pools, unless chlorination is supplemented by lime treatment.

These data show that the addition of soda ash to adjust pH is unsatisfactory in chlorinated-softened water swimming pools.

These case reports indicate the apparent instability of chlorine in the form of liquid chlorine or sodium hypochlorite when introduced into a recirculation system where chlorination of the same water occurs and the depletion of the base is not controlled. A similar condition would likely occur in the chlorination of the water supply or a sewage effluent if the dosage of chlorine was in excess of the base necessary for the formation of hypochlorite and the maintenance of proper alkalinity for stabilization.

These case reports indicate a greater stability of calcium hypochlorite as compared with sodium hypochlorite.

A later paper will present the data obtained from additional observations and from laboratory studies on the stability of sodium and calcium hypochlorites and their relation to the chlorination of water supplies.

Decomposition of Land-fills*

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IN the past, there have been presented before the Engineering Section of the American Public Health Association papers describing the procedure of placing land-fills as practised by the New York City Department of Sanitation. In 1939, a report of the preliminary survey work on land-fills was presented by Carpenter and Setter.[1] It is the purpose of this paper to present more results of research on land-fill characteristics as carried out by the Work Projects Administration under the sponsorship of the Department of Sanitation and the technical supervision of the staff of the Sanitary Engineering Research Laboratory of New York University.

The investigations were made at the five locations described as follows:

1. *Baychester*—A marsh area of about 150 acres bounded by Baychester Avenue and Bartow Street and adjacent to Eastchester Creek in Bronx County. Fill operations were started about 1927 and approximately 80 acres have been reclaimed and are available for recreation centers, park areas, or public building sites.

2. *Canarsie*—A tract of about 25 acres lying at the southerly terminus of Remsen Avenue, Kings County, near Jamaica Bay. Field operations were started in November, 1935, and some 25 acres have been reclaimed.

3. *Fairfield*—An area of about 2,000 acres located at the southerly terminus of Pennsylvania Avenue, and adjacent to the southerly side of Fairfield and Flatlands Avenues in Kings County. This is near the head of a basin leading into Jamaica Bay. Filling operations were started in 1933 and approximately 100 acres have been reclaimed.

At the southerly end of the Fairfield land-fill a bridge approach has been constructed using land-fill material. This bridge is part of a grade crossing elimination at the junction of Pennsylvania Avenue and the new Belt Parkway.

4. *Floyd Bennett*—This tract of approximately 1,500 acres is situated north of the Floyd Bennett Airport and adjacent to and east of Flatbush Avenue. It lies near a basin leading into Jamaica Bay. Fill operations were started toward the end of 1936. The area reclaimed (approximately 350 acres) will be available for the extension of the airport.

5. *Riker's Island*—This is situated in Long Island Sound, midway between Hunts Point in the Bronx and North Beach in Queens. In 1900 the area of this island was approximately 30 acres; today it is approximately 425 acres. The Riker's Island penitentiary has been constructed on this site, and it may be used for other public buildings. Land-fill material which had been in place here for many years was used as fill for the field and runways at La Guardia Airport. After being trucked across a temporary wooden trestle to

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the site of the airport, the consolidated land-fill material was compacted by trucks, bulldozed and rolled ready for paving.

In order to determine the composition of fresh land-fill material the contents of 168 refuse collection trucks were sorted, classified, weighed, and measured. The data were obtained from the examination of material emanating from 19 out of the 41 sanitation districts contributing to the land-fills in the Bronx, Brooklyn, and Queens.

The load of fresh fill material selected for analysis was dumped from the truck on a clear level area of the fill at one side of the normal dumping operations. The sorting crew would then segregate the baked goods, vegetables, citrus fruits, greens, meats, bones, fats, fish, paper, metal, wood, ashes, glass, leather, rags, grass and leaves, rubber, and the remaining miscellaneous items.

The different groups were then weighed on a platform scale and the data entered on the sorting and classifying form. These materials were then dumped to one side and pushed into the fill by a bulldozer. For purposes of tabulation and comparison the sorted components will be considered in the following categories:

A. Organic
   1. Food Refuse
   2. Paper
   3. Wood
   4. Miscellaneous, including rubber, rags, grass and leaves, leather, and other less prominent miscellaneous items.

B. Inorganic
   1. Glass
   2. Metal
   3. Ashes

It is obvious that these components do not occur in the same ratios throughout the year. The greatest variation occurs in the ash component, since hard coal is the major fuel used for heating homes and buildings in New York City. Therefore, the analyses were made each month and are summarized in Table 1.

It will be noted that the principal variations occur in the percentage of food refuse and ashes. These results should not be confused with the total tonnage of refuse received at the fills each month. They signify only that of all the refuse, with total tonnage varying each month, the percentage of each of the segregated items follows the variation shown in Figure 1.

FIGURE 1

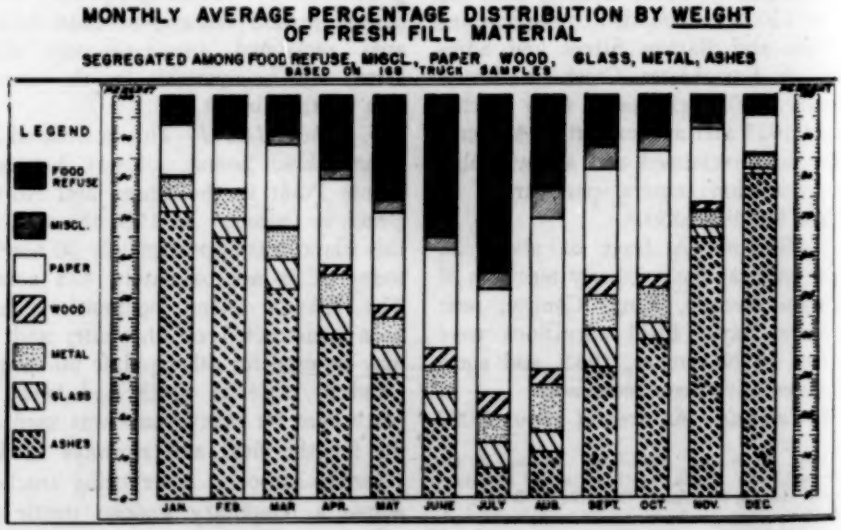


TABLE 1

Monthly Distribution by Weight of Fill Material
Based on the Sorting and Classifying of 168 Truck-loads of Fresh Fill Material

	Organic				Inorganic					
Month	Food Refuse	Misc.	Paper	Wood	Metal	Glass	Ashes	Total	Total Organic	Total Inorganic
	%	%	%	%	%	%	%	%	%	%
January	5.7	1.0	12.4	0.3	4.3	4.0	72.3	100.0	19.4	80.6
February	9.0	1.7	12.6	0.7	6.6	4.9	64.5	100.0	24.0	76.0
March	9.7	2.1	20.6	0.3	7.4	7.3	52.6	100.0	32.7	67.3
April *	18.1	2.8	21.6	2.0	7.4	6.9	41.2	100.0	44.5	55.5
May *	26.7	3.3	23.0	3.1	7.1	6.8	30.0	100.0	56.1	43.9
June *	35.1	3.8	24.3	4.6	6.4	6.8	19.0	100.0	67.8	32.2
July	43.8	4.1	25.5	5.9	6.6	6.3	7.8	100.0	79.3	20.7
August	23.1	7.4	37.6	3.8	11.6	5.1	11.4	100.0	71.9	28.1
September	12.6	5.6	26.7	4.9	8.2	9.1	32.9	100.0	49.8	50.2
October	10.1	3.8	31.0	2.6	8.9	4.0	39.6	100.0	47.5	52.5
November	6.6	1.9	18.0	2.1	3.8	2.9	64.7	100.0	28.6	71.4
December	3.5	0.8	9.0	0.8	3.1	1.9	80.9	100.0	14.1	85.9

* No samples taken in April, May, or June; obtained by graphical projection.

The material actually entering the fill does not include all of the components noted above. Contractors purchase scavenging permits from the city for the privilege of reclaiming such items as stoves, hot water tanks, large tin cans, and other metalware of value, rags, paper, tires, and any other material which can be sold to dealers. The amount of recovered material depends on the market value of the recovered waste and other factors in the economic cycle. Therefore, adjustments in the percentages entering the fills must be made to account for scavenging operations.

Having analyzed the fresh fill material, it was desirable to take samples of land-fill after it had been in place for different periods of time. Sampling was accomplished by means of auger type post hole diggers which could be operated to a depth of 25 feet. Four auger holes were dug at the corners of a 100 foot square located in the center of the area to be sampled as shown in Figure 2. Three samples representing the top, middle and bottom of each hole were obtained. After quartering and collection of composite sample, the material was dried, manually separated and screened into the following classifications: material retained on 4 mesh screen, material pass-

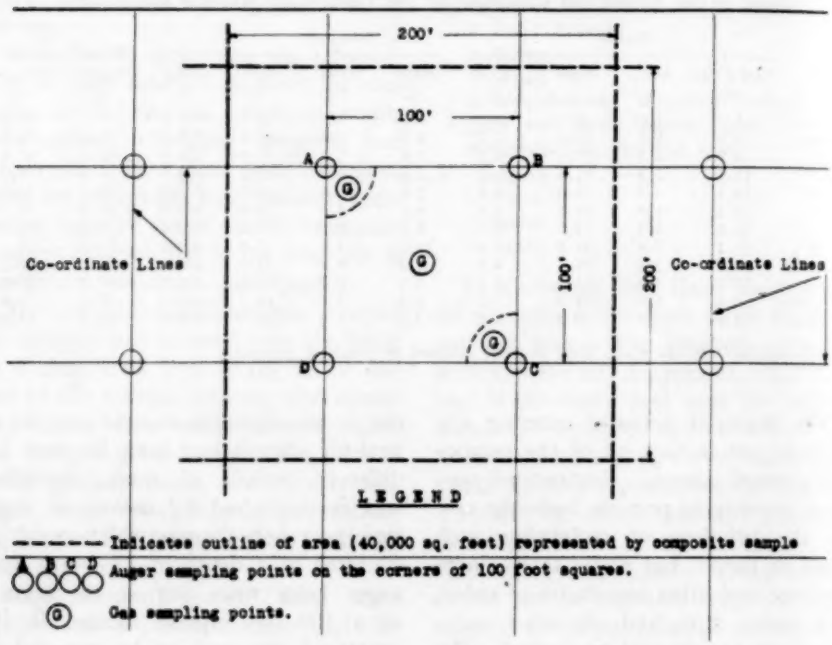
TABLE 2

Percentage of Oxidizable Material in Residue III

Age (Months)	Top (2' to 4')	Middle (5' to 7')	Bottom (8' to 10')
	Per cent	Per cent	Per cent
0–3	2.8	3.6	4.6
3–6	2.9	3.5	3.7
6–9	3.0	4.1	4.5
9–12	3.0	3.1	4.3
12–18	3.0	3.1	3.6
18–24	2.6	3.7	4.5
24–30	2.2	1.9	2.4
30–36	2.6	3.2	3.4
36–48	2.2	2.7	3.3
48–120	2.8	4.4	3.8
360–420	4.1	3.2	2.6

FIGURE 2

SAMPLING LAYOUT & PROCEDURES



Sampling Procedures

A—Fill Material

1. Material sampled at each level from each of the sampling points, A, B, C & D is brought together on a clean tarpaulin.
2. It is then thoroughly mixed (composited).
3. The sample is reduced by quartering to one gallon.
4. The sample is placed in a one gallon friction top can, and submitted to the laboratory for analysis..
5. Report of field sampling data is made and forwarded to the laboratory with each sample.

B—Gas Sampling

1. At point of sampling (G) a gas sampler is driven to the sampling depth.
2. A sample of gas is taken from the fill.
3. The sample of gas is analyzed and data are entered on the gas analysis form.

ing 4 mesh and retained on 14 mesh screen, and material passing 14 mesh screen.

It was found that an average of approximately 30 per cent of the total material in the fills ranging from 3 to 120 months in age was large enough to be retained on a 4 mesh screen, the greatest portion of this being mineral matter. Approximately 20 per cent of the total passed the 4 mesh and was retained on the 14 mesh screen, most of which was ashes. The remaining 50 per cent passed the 14 mesh screen and was partially disintegrated and unrecognizable organic matter. Most of the analyses hereinafter mentioned were made on the material passing the 14 mesh screen.

One of the principal elements of organic compounds being carbon, it was found advisable to obtain an indica-

TABLE 3

Parts per Million of Organic Nitrogen in Residue III

Age (Months)	*Top (2' to 4')*	*Middle (5' to 7')*	*Bottom (8' to 10')*
0–3	1,465	1,540	1,547
3–6	1,522	1,426	1,706
6–9	1,521	1,678	1,539
9–12	1,726	1,605	2,047
12–18	1,471	1,482	1,639
18–24	1,777	1,720	2,329
24–30	1,422	1,504	1,538
30–36	1,585	1,438	1,952
36–48	1,118	1,398	1,625
48–120	1,939	1,970	2,652
360–420	3,116	2,934	2,135

tion of the organic carbon present in land-fills. After trying several methods, the one involving the 2 hour digestion of organic matter using an excess of 50 per cent chromic acid at room temperature, was found to give the best indication of the oxidizable matter present. The results of analyses of the residue passing the 14 mesh screen are shown in Table 2. It will be noted that there is an appreciable reduction in the per cent of oxidizable matter after four years of decomposition in the land-fill. It is difficult to explain the reason for an increase in this matter with depth, except that it must be a characteristic of the placing operations, as the analyses show a consistent increase with depth.

Organic nitrogen is a criterion of protein derivatives present in land-fill material. The results of analyses are given in Table 3. It will be noted that decomposition over a period of four years does not bring about any great reduction in the amount of organic nitrogen present.

The environmental conditions are extremely important in any organic reactions brought about by bacteria and other microscopic organisms. First among these is the pH of the solution in which these organisms act. Table 4 presents the results of analyses of land-fill samples of various ages. It will be noted that the range of pH is from 5.3 to 8.5, with a mean close to the neutral point. This would indicate that the

TABLE 4

pH Values

Age (Months)	*Top (2' to 4')*			*Middle (5' to 7')*			*Bottom (8' to 10')*		
	Low	*Mean*	*High*	*Low*	*Mean*	*High*	*Low*	*Mean*	*High*
0–3	5.3	7.1	8.0	5.4	6.9	8.0	6.0	6.9	8.0
3–6	6.5	7.1	8.5	6.5	6.9	8.4	6.3	7.3	8.4
6–9	—	7.0	—	—	7.0	—	—	6.5	—
9–12	7.05	7.2	7.3	6.5	7.1	7.7	6.0	6.7	7.3
12–18	—	6.9	—	—	7.4	—	—	—	—
18–24	6.9	7.6	8.3	6.0	6.5	7.0	—	—	—
24–30	8.3	8.4	8.4	—	—	—	—	—	—
30–36	—	7.0	—	—	6.3	—	—	7.6	—
36–48	—	—	—	—	—	—	—	—	—

(—) No Data

TABLE 5

Average Number of Organisms
Total Plate Count 37°C. — 24 Hours

Age (Months)	*Top (2' to 4')*	*Middle (5' to 7')*	*Bottom (8' to 10')*
	Millions per Gram of Dry Fill		
0–3	73.198	42.280	35.489
3–6	10.920	13.815	12.839
6–9	21.247	73.540	51.928
9–12	0.204	6.412	40.520
12–18	11.031	14.511	25.577
18–24	4.811	4.443	1.239
24–30	12.042	25.281	33.805
30–36	0.031	1.162	0.100
36–48	0.144	0.030	1.230

material is well buffered and provides a favorable environment for bacterial metabolism.

It is interesting to note the number of organisms in the land-fill which will appear on a total plate count at 37° C. This is indicated in Table 5. The trend is obviously toward fewer organisms as the decomposition proceeds and the available organic matter becomes depleted. These large numbers growing on nutrient agar do not begin to show the total number of organisms actually present and taking part in the complex processes involved in the breakdown of organic matter.

Since land-fill material is not of a fecal nature, it therefore should not be high in organisms derived from the intestinal tract, such as would be the case with sewage. Analyses of land-fill were made for *Escherichia coli* organisms and the incidence of these is relatively low, as indicated in Table 6. It is obvious that these are not the essential organisms in the decomposition of land-fills.

Fungi are present in much of the food refuse disposed of as garbage and then deposited in land-fills. The numbers of these organisms in each gram of dry fill are of astronomical proportions, as shown in Table 7. The same is true of actinomyces. Both of these groups of organisms are highly active and responsible for much of the breakdown and consequent stabilization of land-fills.

Although the fills may be placed dur-

TABLE 6

Average Number of Escherichia coli
at 37° C. — 24 Hours

Age (Months)	*Top (2' to 4')*	*Middle (5' to 7')*	*Bottom (8' to 10')*
	Millions per Gram of Dry Fill		
0–3	0.002	0.005	0.020
3–6	0.008	0.001	0.001
6–9	0.039	0.003	0.003
9–12	0.002	0.005	0.005
12–18	0.040	0.004	0.000
18–24	0.000	0.000	0.012
24–30	0.026	0.168	0.034
30–36	0.000	0.006	0.000
36–48	0.019	0.023	—

(—) No data

TABLE 7

Average Number of Fungi at 25° C. — 7 Days

Age (Months)	*Top (2' to 4')*	*Middle (5' to 7')*	*Bottom (8' to 10')*
	Millions per Gram of Dry Fill		
0–3	17.777	23.851	20.162
3–6	57.079	51.452	0.075
6–9	145.572	96.007	198.079
9–12	0.195	25.915	1.431
12–18	228.773	53.107	975.131
18–24	208.274	10.027	8.887
24–30	55.304	43.751	27.609
30–36	0.151	1.658	0.109
36–48	0.000	0.001	12.000

ing the coldest of weather, the material is insulating in character, so that heat is not readily transmitted to the atmosphere. The reactions are thermogenic in nature and bring the temperature of the material to the values shown in Figure 3. These are in the range between the optimum temperatures for mesophilic and thermophilic organisms. Investigations have shown that both types are present and assist in the decomposition.

One of the principal characteristics of land-fills is the dryness of the material as placed. The large amount of paper and ashes more than counteracts any moisture derived from the food refuse and other moist materials. The moisture content of land-fill material of various ages and at different depths is shown in Table 8. It will be noted that the moisture increases with age and also with depth. These observations are logical because the infiltration of surface rain water will tend to accumulate in the dry material. Furthermore, water will naturally gravitate downward in time. Moisture bears a

FIGURE 3

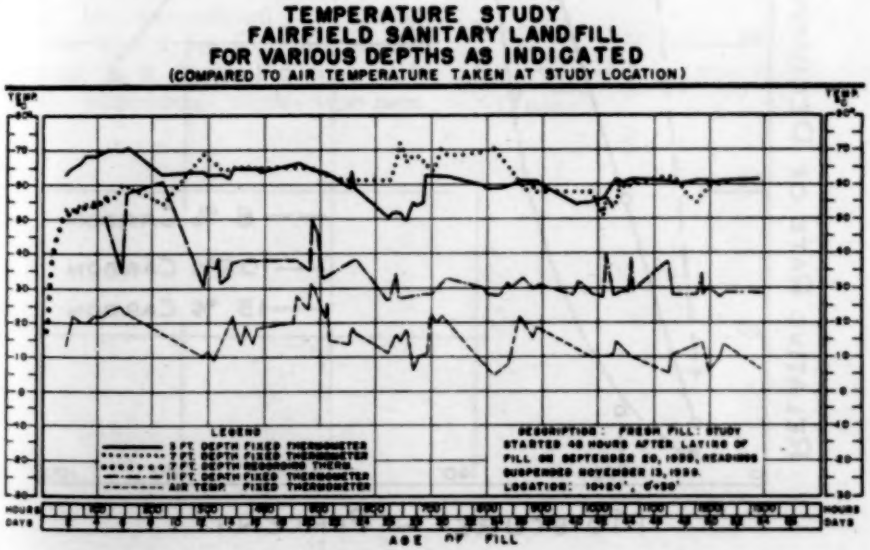

TEMPERATURE STUDY
FAIRFIELD SANITARY LANDFILL
FOR VARIOUS DEPTHS AS INDICATED
(COMPARED TO AIR TEMPERATURE TAKEN AT STUDY LOCATION)
TEMP °F
LEGEND
DESCRIPTION: FRESH FILL: STUDY STARTED 48 HOURS AFTER LAYING OF FILL ON SEPTEMBER 20, 1939. READINGS DISCONTINUED NOVEMBER 13, 1939.
LOCATION: 10+24', 0+50'
HOURS
DAYS
AGE OF FILL

TABLE 8

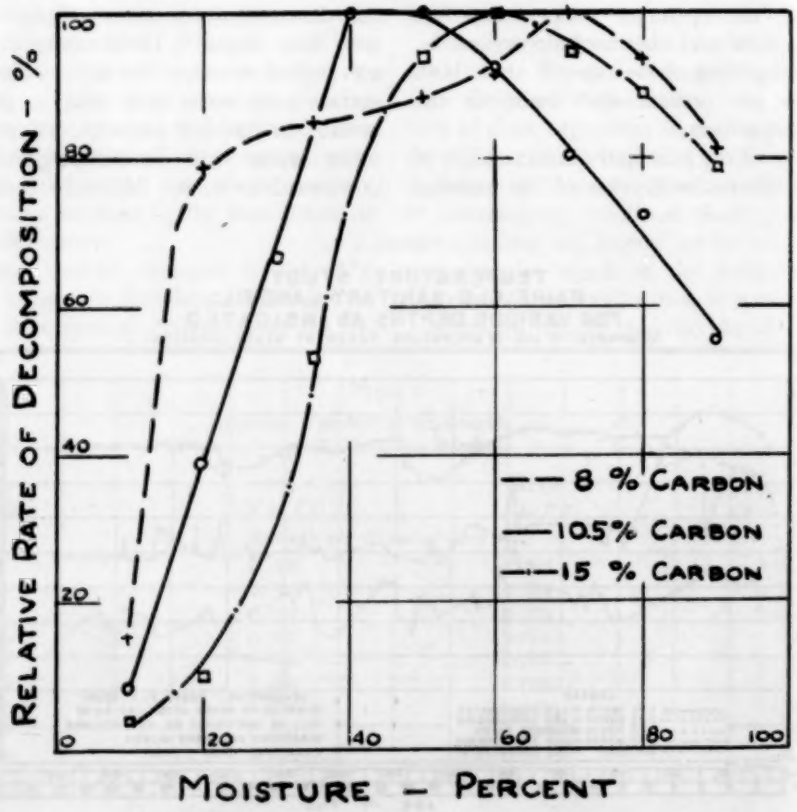
Moisture in Original Sample as Received

Age (Months)	*Top (2' to 4')*	*Middle (5' to 7')*	*Bottom (8' to 10')*
	Per cent	*Per cent*	*Per cent*
0–3	18.9	20.9	22.8
3–6	19.2	23.8	20.9
6–9	21.7	24.3	28.4
9–12	24.5	26.7	33.5
12–18	25.2	25.9	31.7
18–24	25.7	30.3	34.3
24–30	20.9	24.1	28.3
30–36	25.5	28.1	32.2
36–48	24.0	28.1	32.4
48–120	21.1	29.5	33.4
360–420	20.9	22.9	21.3

definite relation to bacterial efficiency, as these and other organisms require the presence of water for survival and reproduction.

Studies were carried out to determine the optimum moisture content of landfill material in an attempt to correlate existing conditions with those deemed

FIGURE 4



theoretically optimum. The procedure involved comminuting 5 grams of dried land-fill and placing it in a Petri dish with the proper seed of organisms and the necessary water to make up to a given percentage moisture. Decomposition took place at a constant temperature and under aerobic conditions. The criterion of biochemical activity was the amount of carbon dioxide gas produced in a given time. All of the CO_2 was dissolved in a solution of sodium hydroxide which could be titrated before and after the experiment to determine the consumption of NaOH by the CO_2. The results of this work are indicated in Figure 4.

These results indicate that for the fresh land-fill material the optimum moisture content lies between 50 and 70 per cent. For older fills the optimum region expands to include values between 30 and 80 per cent. As shown in Table 8, the moisture content of land-fills averages between 20 and 30 per cent and this does not approach the optimum values. These results would further indicate that more rapid decomposition of land-fill could be obtained if additional moisture were added to the fill while being placed. This could be accomplished by having streams from a fire hose play on the material as it is dumped from each truck. Experiments of this type have been planned and the results will be watched with interest.

Under actual field conditions the air in the fills is rapidly exhausted and the process of decomposition becomes anaerobic. This is evidenced by the results of many gas analyses taken from within the land-fill. The constituents varied considerably but the indications were that the gases averaged 30 per cent carbon dioxide, 45 per cent methane, 3 per cent oxygen, 0.1 per cent hydrogen, and the remaining 22 per cent nitrogen and other inert gases. The high percentage of methane and almost complete absence of oxygen serves to indicate the anaerobic character of the decomposition.

The ultimate object of the decomposition of land-fill is the stabilization of the material so that the ground above may be used for recreational or functional purposes. Further investigation is necessary to correlate the data already collected on settlement of the fills, permissible bearing loads and other factors of an engineering nature. The material presented in this paper should serve to indicate the nature and extent of the biochemical reactions which take place during the decomposition of land-fills.

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HOUSING OF HEALTH DEPARTMENTS

IN the May 22 issue of *Public Health Reports,* the *Housing of Health Departments* was discussed by Assistant Surgeon General Joseph W. Mountin of the United States Public Health Service; and in the July number of the *Architectural Record,** the Hospital Facilities Section of the United States Public Health Service made available its *Study of Health Centers.*

In the first of these articles, health department housing, as it is, comes in for severe criticism. The situation is analyzed as to cause or causes, and brief but definite suggestions are made as to remedies. The Study, with a foreword by Dr. Parran and an introduction by Dr. Mountin, provides floor layouts for health centers designed to serve populations up to thirty thousand, sixty thousand, and one hundred thousand respectively. Supplementary data are provided as to office and clinic equipment, clinic loads, and even clinic schedules are suggested. One might, with reason, feel that there is a bit too much minuteness in some of this, perhaps more certainty in detail than is justified, but it is a valuable document and one to be studied and acted upon.

Of equal importance with the recommendations made in this study, probably of more importance, is the necessity for eradication of that attitude in health officers, public officials, and the public generally, which in the past has inhibited the provision of decent housing of health departments; and there must be developed, too, a state of mind which will insure proper quarters in the future. In retrospect one may see quite clearly that no small part of the present unsatisfactory situation arose because the launching of full-time local health service has always been an up-hill fight. The state health officer promoting such service has been forced to make compromises of all sorts in order to get a toe-hold for local service. He has had to approach the whole problem with over-emphasis on how little it would cost the community; he has occupied the rôle of supplicant and seldom has he been in position to lay down minimal requirements as to anything, to say nothing of health department quarters. And the

* Copies are available upon request from the A.P.H.A. office.

local health officer, in accepting, selecting, or equipping quarters, has had to be somewhat careful lest, to the jeopardy of his whole program, he label his work as foreign, by failure to acquiesce in the shirt-sleeve and tobacco-spitting type of local administration seen in most small units of government.

Perhaps there has been justification in the acceptance of expedients and compromises in health department quarters. It may be that if this had not been done many communities which now enjoy health service of a sort would not be as well off as they are. As against this, though, is the ever-present danger that compromise measures tend to freeze into permanent practices; that a tuberculosis service, at first maintained on a high plane in spite of all difficulties, may sink to the level of inadequate facilities; that the insanitary condition of health department quarters as a whole and the unpleasant odors of the venereal disease clinic, in particular, at first distressing to doctor and nurse alike, are sooner or later accepted through dulling of the sensibilities. That this is what ordinarily happens, there can be no doubt; and the correction of it will be brought about only by strong, concerted, and continuing action and assistance under federal, state, and foundation leadership.

On the positive side, separate, and distinctive, quarters have much to commend them. Aside from providing an opportunity for more nearly adequate and better work, the presence of a dignified and inviting health center has an important bearing upon the amount and kind of use which the community will make of the health services, and the regard in which the public holds the health department. It may not be logical, and from the standpoint of clear thinking perhaps it should be deprecated, but the fact remains that the public is not inspired by the light under the bushel, nor is John Citizen impressed by something he cannot see. He wants concreteness, an emblem, a symbol. He appreciates length, breadth, and thickness more than he does an abstraction. Thus, in an association-of-ideas test, to the word "education" he would probably respond with "school"; to "religion" his reply would perhaps be "church"; and to "United States Mail" he would in all likelihood say "post-office": all these responses represent three dimensional concepts, in terms of buildings. What would be the response today if to the average small town citizen one suddenly said "health department"? Perhaps there would be no association, or possibly it would be "basement" or "dingy" or "the old school house." As a remedy for this we need to bring about such an attitude on the part of the public that in an association-test situation, the person tested will upset the procedure; that the mere voicing of the term "health department" will arouse him sharply from the semi-lethargy necessary for free association, and he will with alertness and interest and enthusiasm exclaim: "Oh, you mean that spick and span Health Center, where such excellent service is rendered, and which is by far the best investment we ever made." Only we hope he will say it less pedantically.

THE SULFA DRUGS AS PRODUCERS OF EMOTION

ONE can understand why emotions flash when a subject such as socialized medicine is introduced into a discussion. In such circumstances it is more than likely that the discussers visualize themselves as parties at interest or in jeopardy, or that one arguer has a low opinion of someone who is in favor of

socialized medicine and another has a low opinion of someone who is against it, or very much vice versa.

It is natural that in a situation of this sort emotions rather than logic influence both the pros and cons and, because the problem is more closely related to sociology than to science, the approach is philosophical rather than scientific. But it is a little difficult to appreciate the psychological reaction of those who become red faced and vehement in discussing the efficacy or lack of efficacy and the dangers or lack of dangers of a therapeutic agent, such as the sulfa drugs. On the one hand is found the practitioner who has less fear of such a drug than of aspirin; who advises and prescribes it for anything and everything, who in no way checks upon the reactions to the drug, and considers that he has wrought a cure unless he has to sign a death certificate. With an experience of this sort behind him, this physician is prepared to take on any colleague who has the temerity to argue against the soundness of his procedure and the magic of the drug. As opposed to him, and certainly someone should oppose him, is the individual who reacts unfavorably to almost anything that is new, who is an avid collector of records of untoward results in sulfa-drug therapy, and who, tending to forget all benefits that have accrued, roundly denounces this new chemotherapy as an invention of the devil.

Perhaps it is in discussions of the treatment of gonorrhea with sulfa drugs that one encounters the most vehement arguments. Enthusiasts will imply a desire to place packets of sulfa drug tablets in slot machines and let whoever has gonorrhea and twenty-five cents try his luck. Others, at the mere suggestion of sulfa drug efficacy in shortening and curing the disease, become so incensed that they charge the drug with "creating" gonorrhea carriers. Few informed persons would be prepared to acquiesce in either of these extreme views. Which is the more nearly correct is not here the issue. The point to be emphasized is that the true place of the sulfa drugs in general and especially in relation to gonorrhea will be reached much more quickly through an objective approach and a minute sifting of evidence than through emotional support of a prejudice in either direction.

WHAT AND WHO IS AN EPIDEMIOLOGIST?

Comments on an editorial published in the April, 1942, issue of the JOURNAL

From one of the Old Masters, L. L. Lumsden, M.D., Medical Director (Ret.), U. S. Public Health Service, New Orleans, La., comes this analysis:

Definitions are always difficult and often unsatisfactory, with one just calling for another. However, the editorial in the April, 1942, issue of the JOURNAL on "What and Who Is an Epidemiologist?" is to us, who for some time have been striving to earn the title, provocative and even challenging. Furthermore, the defining of epidemiologist is no more nor less difficult than is the defining of physiologist or pathologist. The writer of the editorial evidently realizing the difficulty of satisfactory defining, gives an "assist" by asking a number of questions, the invited answers to which might serve to furnish a definition by a sort of process of elimination. So here goes at the answers:

Q. "Are epidemiologists born or made or just self-confessed?"

A. They must be both born and made. Being just self-confessed is not enough.

Q. "May the clinician, the statistician, the bacteriologist properly designate himself as an epidemiologist?"

A. No; but any of them, notwithstanding or even in spite of his former predilections,

may become an epidemiologist by proper application and by having what it takes.

Q. "Can one be an epidemiologist and something else besides?"

A. Yes. Outstanding in the all-time list of epidemiologists have been Pasteur, a chemist, Jenner, Budd, and Snow, practising physicians, and Sedgwick, an engineer.

Q. "Does the first-hand experience of a quarantine officer take him within the fold?"

A. No.

Q. "What about one who, in retrospect, studies the data of past epidemics; and the medical historian with intimate and detailed knowledge of the classic writings in epidemiology?"

A. They may be regarded as academic but not as practical epidemiologists or going concerns.

Q. "One who concentrates upon a single disease—its laboratory, clinical and epidemiological aspects—is he an epidemiologist in general or only in particular?"

A. He may be both. If Reed and Goldberger had done no epidemiological work except what they, respectively, did on yellow fever and pellagra, they would have held high rank as epidemiologists.

Q. "May one not formerly an epidemiologist reach this state merely by being given responsibility for epidemiological work?"

A. No; in years past, we have seen, off the job, enough of this sort to make us sure.

Q. "If once an epidemiologist is one always an epidemiologist?

A. No; some of them become lunatics.

Q. "Is epidemiology a status that may be conferred by acclamation or announcement?"

A. Perhaps under some circumstances, but as a rule only for purposes of sociability.

Q. "Does portentousness of manner and mien tend to cause colleagues to accept one as an epidemiologist?"

A. Yes, at times, but it never should.

Now, having got this far along, here goes at home-made definitions of "What and Who."

What?

An epidemiologist is one who is importantly concerned with or esentially engaged in broad-gauge and intense studies, including field observations, of conditions known or reasonably supposed to influence the occurrence of disease. Who says "importantly," "essentially" and "reasonably"? The epidemiologist himself does, and who shall say him nay?

This leads to

Who?

One who does well enough epidemiological work to deserve recognition.

Recognition from Whom?

Answers to that would vary much according to the audience interrogated. For convenience, we may start off with the judgment of those who from study, training, and experience have technical knowledge of epidemiological procedure and end up with the common opinion of mankind. A detective who solves a murder mystery and an epidemiologist who solves an important disease-causation problem usually obtain favorable popular recognition. But some of the highest grade epidemiological work does not result immediately in an important discovery, but builds up, step by step, a structure of facts by which eventually someone else may climb to the light.

No standard of qualifications for an epidemiologist has been set up by authority. Therefore, the decision as to who in our midst is an epidemiologist is wide open. He should be judged by his works. Among some of the distinguishing features which are helpful in the establishment of his identity are the following:

1. He has in his makeup two essential elements—common sense and the will to work.
2. He applies his common sense in formulating his program of studies and in interpreting and presenting his findings.
3. To him facts are all important. He goes after them and gets them, and in collecting them he is diligent, patient, careful, thorough and unbiased.
4. He endeavors to put together the facts so as to make a simple, readily readable picture.
5. In his presentation of findings, he avoids needless or obfuscating high mathematics and formulae.

6. He bases his conclusions on the factual evidence and he does not twist the facts to try to make them appear to conform to some favored previous concepts of himself or others.

7. He remains broad-minded and open-minded throughout his procedures.

8. He is humble in his ignorance but bold in his search for truth.

9. His doctrine is that of Montaigne's ancient sailor who in the midst of a great storm said to Neptune: "O God, thou shalt save me if thou please, if not thou shalt lose me; yet will I keep my rudder true."

Joseph C. Willett, D.V.M., Chief of Laboratories, City of St. Louis, comments as follows:

In view of what has been said, as well as some of the omissions concerning epidemiologists, may I venture that an epidemiologist is one who by virtue of training, experience, and actual demonstration, is capable of recognizing, investigating, and appraising all of the circumstances (obvious and otherwise) connected with the occurrence of disease in man or animal and consequently discovering the essential basic factors (source, etiology, distribution, incubation, etc.) necessary to disease control and prevention.

As in other fields of endeavor, we must recognize the capabilities of different epidemiologists—if we were to define "detective" as a person capable of recognizing and investigating all the circumstances connected with crime, we would still distinguish between the armchair Sherlock Holmes and an accomplished operative of the FBI.

Yes, even grandma, who recognized all of the diseases of childhood and perhaps knew something about the "circumstances connected with their occurrence," was an epidemiologist, as was grandpa, who possibly knew a lot about hog cholera. However, in modern preventive medicine our epidemiologists must have better basic training—yes, even better than that afforded by the present medical or veterinary schools.

The bacteriologist, clinician, statistician, of which you speak may be epidemiologists with the same degree of success as the average intelligent non-arthritic layman attains in forecasting the weather.

Possibly we could better appraise the practical worth of our epidemiologist if we looked to the thickness of the callouses on his feet, and the number of successful epidemic investigations to his credit, as well as to the kind and number of letters after his signature.

C. E. Dolman, Ph.D., D.P.H., Professor of Bacteriology, University of British Columbia, Vancouver, B. C., sends this letter:

When I asked the above question of three colleagues, they replied respectively: "a transportation expert," "a contact tracer," and "a totipotential sleuth." The expertness my first colleague (a bacteriologist but no cynic) had in mind related to the tracing of the most likely route for a given pathogen to have travelled, rather than to the working out of the most expensive way for an epidemiologist to have made a given trip. The second colleague was a venereologist, and so may be excused for his definition. The third had been an epidemiologist too recently for all bitterness to have mellowed. Although there seems nothing essentially wrong with any of their replies, the most satisfactory definition of an epidemiologist is surely the simplest and

most literal, that he is a person who looks into, deals with, knows about, and treats of epidemics.

But I should judge that this dissection by correspondence of the epidemiologist was initiated not so much to determine more accurately his structure and functions, as to help define his status and strengthen his hand. The junior epidemiologist's lost look, and the senior's "portentousness of manner and mien," are not altogether their fault. Any of us might well feel baffled if, knowing our job was to look into epidemics, we were apt to find ourselves on the scene too late to make a first-class investigation, and were met on arrival with conflicting answers to almost every question; if, in attempting to deal with the epidemic, we were often balked by lack of clear-cut authority; if, in trying to persuade at least ourselves that we knew about epidemics, our self-esteem was sometimes shattered through the specimens we had assiduously collected being mocked at or spurned by the laboratory, and through our carefully illustrated itinerary being consigned, without praise or blame, to some dark file in a central office; and especially if, in an endeavor to "treat of" some epidemic publication of our findings was banned because of feared legislative complications.

Such difficulties as these do not refute, but only emphasize, the need for more and better epidemiologists. Together with his public health laboratory colleague, the epidemiologist furnishes most of the information on which any sound health department program is founded. Yet these persons seldom occupy the honored place in the departmental hierarchy to which their objectives and training entitle them. What they lack is not responsibilities, but prestige; and this cannot lean on tradition, even when, from Fracastoro to Snow, from van Leeuwenhoek to Pasteur, the tradition has been compounded of integrity, scholarship, courage, and leadership. But these very attributes are still recognizable enough to bring prestige to those who manifest them. When this is fully realized, and the epidemiologist, turning to his laboratory colleague, grows in every sense attached to him, they will wax strong together, to their own and their community's lasting benefit.

This discussion will be brought to a close in the November issue.—EDITOR

Credit Lines

A Selective Digest of Diversified Health Interests

D. B. Armstrong, M.D., and John Lentz, M.S.

REAL HEALTH EDUCATION

The Scene: A county health department.

Characters: A health officer, a mother, and a nurse.

[*Enter, the nurse*]

Nurse: "Doctor, Mrs. Cook is here to see you. She insists on talking with you personally, although I suggested that she might see some other doctor on the staff. She only wants to know about taking the Pasteur treatment."

The Health Officer: "I should be at the immunization clinic now. Perhaps it won't take long—send her in."

[*Mrs. Cook enters accompanied by the nurse. It is evident from her expression and actions that she is disturbed and anxious.*]

The Health Officer: "I'm glad you've come to the health department, Mrs. Cook. I believe you've never paid us a visit before. I know your community pretty well—seems we should have met long before this."

Mrs. Cook: "I feel that I know you already, Doctor. I've heard the children speak of you and I've read in the papers about the work you are doing here."

The Health Officer: "The nurse tells me that you want to inquire about the Pasteur treatment. Now, just what is your question?"

Mrs. Cook: "My 12 year old son agreed to tend the cows of our nearest neighbors while they were away on a short vacation. One of the cows acted queerly and my son tried to find out what her trouble was. He knows how to care for livestock, and in attempting to give the cow some medicine, he got a nip on the hand. Finally, a veterinarian was called and he said the cow had rabies. By the time we got the animal's head to the laboratory, the doctor there said he could not make the tests to tell whether or not the animal was actually mad as the head was too far decomposed."

The Health Officer: "Yes, that often happens. The head must be well preserved or the laboratory man will be unable to locate certain characteristic structures that show up in the brains of animals that have rabies."

Mrs. Cook: "And that's just why I'm so disturbed, Doctor—not knowing whether or not my boy is in danger. I know that rabies is fatal once it develops and of course I want him protected if there is the slightest chance that he might have it. But I'm also afraid of those 'shots'—I've heard they are dangerous, that they don't always work, and that the injections cost a lot."

. . . . .

At this point the health officer might have made a few statements urging the the mother to have her son protected, regardless of what she had heard about the "shots." But here was a woman

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Please address samples of printed matter, comments, or other editorial contributions to the editors at One Madison Avenue, New York, N. Y.

who had never been to the health department before—and thus there was an opportunity at hand to make another advocate of public health, another opportunity to impart health education. Thereupon, the health officer called for his records. He cited the number of Pasteur treatments given in his department over a period of years, he told how the injections were administered, he pointed to the various age groups that had been treated, and he emphasized the generally successful results and the lack of complications arising from the administration of the vaccine. He might have stopped there, but there was still other evidence to reassure this mother.

[*Turning to his bookcase, the health officer drew from its shelves a well known textbook on public health and hygiene.*]

. . . . . .

The Health Officer: "Mrs. Cook, perhaps our experience here does not clear up all your doubts about the value of this treatment. Well, here's a textbook that every public health man in the country looks upon as a sort of Bible of the profession. Let's see what the author has to say about the Pasteur treatment."

[*And thereupon the health officer read aloud to Mrs. Cook sections of the chapter on rabies that would help to dispel her anxiety. She listened attentively as the health officer read and translated the author's phraseology into simple, readily comprehended terms. An observer could see this mother's doubts and fears and uneasiness vanish as steam is wont to vanish into thin air.*]

Mrs. Cook took leave of the health officer reassured, composed, and grateful. She might have left under far different circumstances had not a busy, harassed, sympathetic health officer taken time to give her facts and figures as to his own experience and that of others regarding the efficacy of the Pasteur treatment. Perhaps he was late at the immunization clinic, but what better evidence could be offered that his time had been well spent than Mrs. Cook's parting remark: "Now I *understand,* Doctor. I'll have my son here in the morning to begin those 'shots' regardless of what they cost. I'm going to tell him what you've said—and neither he nor I will be afraid!"

This, it strikes us, is health education at its best and proof that the health officer can be the most effective of all health educators.

AN EDITORIALETTE: HEALTH IN WARTIME FOR THE "UNDER SIXES"

Herewith we present our second guest editorialette, submitted in response to invitations extended in these columns during recent months. Miss Marjorie L. Craig, of the School Health Bureau, Welfare Division, Metropolitan Life Insurance Company, has written the following:

The importance of the young child's health has long been stressed by leaders in public healtth through their excellent programs on maternal and infancy care, including diphtheria immunization and vaccination against smallpox. The public health profession is now being called upon to give more attention to all the "under sixes." Many problems of the preschool child have been accentuated by war conditions, and action has become more urgent. Housing facilities, particularly in industrial areas, are inadequate, sanitary conditions are unsuitable, and the possibilities of contagion and poor general health are amplified. The war has brought about new fears and insecurities and has created fewer opportunities for good emotional hygiene and social growth. The health of some 10 million "under

sixes" has real significance in the war program. Military and industrial men and women must have faith in the security of their children before they can give their most efficient service. New emphasis is being placed on providing for children the best possible kind of physical, mental, emotional, and social environment which is basic to a nation's security in any era.

Charles Schottland, formerly of the Children's Bureau, has been appointed to the Office of Defense, Health, and Welfare to coördinate the services for children offered by health, welfare, and educational agencies. All over the country, organizational interest is being submerged and is giving way to the wholesome development of the individual child as uppermost in the minds of those responsible. New programs for young children are springing up rapidly and it is hoped that the public health profession will coöperate in making available health facilities consistent with accepted standards. Nursery schools, day nurseries, child care centers, and other services are essential if today's children and the children of the future are to have opportunities for American life and the liberties for which we fight on every front.

(EDITORIAL NOTE: These columns are still open to other contributors. Please let us have your comments on any subject—preferably with a health education slant. While we cannot guarantee publication, serious consideration will be given to all material submitted.)

NOTES ON PUBLICATIONS

You will want to see:

Record of Service, 1940–1941, the biennium report of Memorial Hospital for the Treatment of Cancer and Allied Diseases, 444 East 68th Street, New York, N. Y.

"The annual report of a hospital should provide more than an accounting of the expenditures of funds and a recounting of routine activities. The statement should convey to the reader the spirit which animates the institution, the ideals to which its personnel aspires, and the ends which they wish, and presumably expect, to attain."

Upon this premise, Memorial Hospital has based its latest report. That it reflects in a most admirable manner the spirit, the ideals, and the scientific and humanitarian principles underlying the work of this great institution is but faint praise for such an excellent summary. The text, for the most part, is devoted to the promising research studies which the institution is pursuing "to ferret out the cause of the mysterious, malignant disease which we call cancer and detest as such." One finds in the pages of this report many hopeful developments looking to the control of this disease, particularly as regards the more recent chemical and nutritional approaches to the problem. Of especial interest also is a section of the report dealing with the social and economic aspects of cancer. The institution recognizes that one of its chief tasks is "to bind up the mental, social, and economic wounds of those devastated by this disease." We know of no current statement, either of a popular or scientific character, that so succinctly analyzes and appraises current efforts and future possibilities in the field of cancer research. The report has other features of note including an attractive cover depicting, by means of a photo-montage, various functions of the hospital. The report is also well executed typographically.

(In connection with the report of Memorial Hospital, we wish to air one of our pet "causes." This publication, like so many others in the medical and public health fields, employs as a title page decoration, the caduceus. While the symbol of the staff, the intertwined

serpents, and the pair of wings is commonly used to represent the healing art, it is not the *true* symbol of the profession. The authentic symbol of medicine is composed of the knotted staff of Aesculapius, the divine healer, wound with a single serpent. It appears in a very few publications. The precedent for using the caduceus, rather than the staff of Aesculapius, goes back to Johann Froben, a Swiss medical printer who lived several hundred years ago. Froben, with an eye for symmetry, preferred the caduceus to the less decorative Aesculapian staff—and thus it came into use as Froben's books were widely circulated among medical men. If authenticity is the quality for which we strive in health and medical publications, why should this not apply even to devices used purely for decorative "touches"? Down with the caduceus! Up with the staff of Aesculapius!)

. . . . .

The Well-Filled Dinner Pail, a folder published by the Iowa State Department of Health, Des Moines, Ia. Single copies offered without cost.

Today, more than ever before, housewives are faced with that perplexing question: "What can I prepare for my husband's lunch that will please him and keep him fit for the job?" Generally, the worker's lunch has lacked variety and appetite appeal. Thanks to the Iowa State Department of Health, suggestions have now been set forth that will make any man look forward to the lunch hour. In this publication, complete menus are outlined for every working day—each menu being planned to supply the body's mechanism with "high octane gas" for the vital jobs that are being done. There are also suggestions in this folder for the preparation of "hearty sandwiches," with a wide variety of unusually tempting and nutritious fillings. Tips are also given concerning hot and cold drinks, raw and cooked fruits and vegetables, and desserts. This timely and practical publication should be had by every housewife who faces the daily chore of preparing lunches for working men. The folder is neatly printed in red and blue and the text is conveniently arranged for ready reference.

. . . . .

Good Teeth, a publication issued by the Metropolitan Life Insurance Company, 1 Madison Avenue, New York, N. Y. Available without cost.

Current interest in dental health, stimulated to a large extent by the number of draftees who were pronounced dentally unfit, has made the need for educational materials in this field more urgent than ever. Accordingly, the Metropolitan has revised its booklet on the teeth with the coöperation of the American Dental Association in order that the most authoritative information on the more important and practical phases of dental health might be made available to the public. The text is simply written and a variety of charts, illustrations, and diagrams are included to emphasize some of the more important aspects of the care of the teeth.

. . . . .

Diphtheria and *Smallpox Can Be Prevented,* two leaflets issued by the Kansas State Board of Health, Topeka, Kans. Available without cost.

Here are two publications notable for their brief, explicit, informative content. Although they lack illustrations and fancy art work, these leaflets win attention readily as bright colors are liberally used on the covers. Each leaflet also contains quotations from what is presumably the Sanitary Code of Kansas, citing the law with respect to reporting, placarding, quarantining, and the like, in cases of diphtheria and smallpox. This is a somewhat unusual feature—one which we have not seen embodied in popular health education materials heretofore, and perhaps of

special interest to physicians. Since few laymen and not all doctors are familiar with legal provisions of this nature, it seems that other states might well use the same medium to publicize their legal safeguards regarding communicable diseases.

. . . . . .

Hartford Health Bulletin, a monthly periodical published by the Hartford Board of Health, Hartford, Conn. Copies available on request.

This bulletin, which is simply and economically produced, is at the same time highly interesting chiefly because it is prepared by someone with a keen sense of news values. The issue at hand, for instance, features several stories in which current health activities are "played up" in relation to the war effort. On the cover, a "Victory Health Program" is outlined in a rather ingenius layout consisting of a large V in which the following essentials are printed: outdoor exercise, varied food, restful sleep, frequent health examinations, vaccination, immunization, child care, sanitary homes, personal hygiene, hard work, community interests, early medical care, and regular dental care. This bulletin also carries an excellent statement in which the practical aspects of the nutrition program, especially as applied to war workers, are emphasized. If there is any health officer who can speak with first-hand knowledge on this subject it is the health officer of Hartford as his community is the center of a vast amount of our industrial effort. Dr. Alfred L. Burgdorf, the Hartford Health Officer, and his associates may well be proud of the bulletin which they issue.

CONCERNING POSTERS AND EXHIBITS

One of the country's leading advertising agencies, Young and Rubicam, Inc., recently completed a study of war posters that have been exhibited in Canada during the past two years. The purpose of this study was to determine the type of poster that has been most successful in mobilizing the Canadian people in support of the war effort. It was felt that such a study might produce knowledge that would aid materially in the production of effective war posters by our government. Health educators will find many of the conclusions interesting and perhaps valuable as "pointers" that should be considered in the preparation of health posters.

Among the conclusions reached are: (1) The most effective war posters appeal to the emotions. No matter how beautiful the art work, how striking the colors, how clever the idea, unless a war poster appeals to a basic human emotion in both picture and text, it is not likely to make a deep impression. (2) The poster should be a picture, not an all-type poster or a symbolic design. And by a picture is meant a true and literal representation, in photographic detail (though not necessarily a photograph) of people and objects as they are, and as they look to the millions of average people. If it isn't such a picture, it is not likely to make a powerful appeal. Abstract design and symbolism are to be avoided, as they are likely to be misunderstood or not understood at all. (3) Unlike humorous commercial posters, humorous war posters do not attract so much attention, nor do they make so popular an appeal as emotional or even factual posters. Moreover, some people definitely dislike humorous war posters.

Since we have frequently criticised certain health posters of symbolic design, we confess to a "We-told-you-so" feeling in connection with the conclusions reached in this study concerning posters executed along these lines. The study reveals that symbolic posters are misunderstood by one in four who see them. Moreover, they do not at-

tract a great deal of attention and they fail to arouse enthusiasm. This brings to mind a story of a poster that was under consideration by a government agency in Washington. A top-flight artist had prepared a design that employed a great deal of symbolism. It was "previewed" before release by twelve individuals—each of whom had his or her own interpretation of what the poster was supposed to convey. Two out of twelve came very near identifying the message, while the others missed the point completely! (Yet, surprisingly enough, the Russians use a lot of symbolism in their supposedly successful posters! How come?)

. . . . .

The National Tuberculosis Association, through its Health Education Advisory Committee, is now issuing a monthly series of posters for display in industrial plants. The posters are produced in sets of four and may be obtained from local tuberculosis associations throughout the country free of charge. Each poster measures 8 inches by 11 inches and is executed in two colors. The most recent series is devoted to physical fitness, cleanliness, exercise, and the necessity for early medical care. They are ideally suited for bulletin board display in that the captions are brief and pointed and the illustrations simple and appropriate. Health educators should be able to use the posters to advantage, especially in defense areas.

. . . . .

"Effective exhibits were never more important in the health education scheme of things than today." With this opening sentence, the State Committee on Tuberculosis and Public Health of the State Charities Aid Association, 105 East 22nd Street, New York, N. Y., proceeds to discuss in a new brochure certain essentials or "musts" that should be followed in preparing and displaying tuberculosis exhibits. Among the topics considered are: adapting exhibits to particular groups or audiences, establishing a central theme, selecting current motifs, and choosing exhibit materials. Concerning "coöperative exhibits," the brochure states: "Don't hesitate to 'team up' with other agencies for exhibit space. Sacrifice independence if by so doing you can obtain a preferred location. The best of exhibits fail if out of the line of marching feet. Securing a preferred location is more than half the battle." The brochure is published under a rather ponderous title: "Health Exhibits—For Any Time and Place by Tuberculosis and Health Associations." Write to the agency at the address given above for copies.

"KEEP WELL" CRUSADE

The forces of health education recently gained a strong ally when the Institute of Life Insurance launched a national health campaign built around the theme, "Keep Well and Help Win the War." During June, July, and August, the Institute sponsored a series of five health messages that appeared in newspapers with a combined circulation of 22 million. The keynote of the campaign was expressed in a set of five simple, fundamental rules of good health, formulated in collaboration with Surgeon General Parran of the U. S. Public Health Service, Dr. Morris Fishbein of the American Medical Association, the Medical Information Bureau of the New York Academy of Medicine, and other leading medical and health authorities. These rules were: Eat Right, Get Your Rest, See Your Doctor Once a Year, Keep Clean, and "Play" Some Each Day. In addition, the copy of these messages stressed personal fitness as a patriotic duty to relieve the medical, nursing, and dental professions now seriously overstrained by the increasing demands of the armed services. Life insurance agents were also mobil-

ized in this campaign to spread other health materials prepared by the Institute. This drive to conserve the health of the American people was no doubt of substantial benefit and many health educators have expressed appreciation of the Institute's efforts to help carry the story of good health throughout our nation.

Perhaps the most effective item among the Institute's promotional materials was a poster setting forth the health rules. For simplicity of expression, this poster has seldom been equalled. Generally, when rules are formulated they take on a certain "school teacherish" tint, but in this poster the health advice is put in a refreshing way so that one does not look upon them as "rules," but rather as essentials that one would wish to adopt for good, orderly living. Moreover, the copy brings out certain points that have not been stressed before—for instance, visiting with friends is recommended as a wholesome form of relaxation. In brief, this is a successful poster—both as to copy content and illustrative material. Perhaps the Institute of Life Insurance would permit health agencies to copy it for local use. If interested, write to the Institute at 60 East 42nd Street, New York, N. Y.

MORE ABOUT JARGON

From time to time we have sounded off on the subject of professional jargon. Now Bruce Bliven comes along and does likewise in his first-rate book called "The Men Who Make the Future." Mr. Bliven, we think, hits the nail on the head in the following excerpts:

"Today many scientists, in America no less than elsewhere, believe it is not only undignified but in some way improper to express yourself simply and clearly. There is a doctrine of obscurity which goes straight back in an unbroken line to the mumbo jumbo of the voodoo witch doctor whose patients would never get well if they understood what he was talking about. It is also allied to the professional bad handwriting of the doctor preparing a prescription. It is a close first cousin of the ponderous verbiage of the lawyer for which there is only one justification: the effort to convince the client that an otherwise dispensable adviser is indispensable. (For an example of the lawyer's reluctance to think straight or write straight, consult your income tax blank, a masterpiece of rhetorical incompetence.) The cult of unintelligibility in our academic life is directly connected with the Germanic tradition in higher education that has done us so much harm these past fifty years, in stressing ever narrower specialization, scholarship for scholarship's sake, the importance of piling one triviality upon another until through a towering monument of uselessness, the scholar's reputation is established.

"In the very recent past, one of the ablest British scientists now living was blackballed for membership in the Royal Society, apparently for the sole reason that he wrote so well that even laymen could understand him. If you want to see the evil influence of this attitude, go to any meeting of any scientific body and listen to the really frightening jargon in which some of the very young scientists couch their papers. It is quite true of course that certain scientific matters cannot be described without using a technical vocabulary, and that mathematical formulae are usually unintelligible to anyone who has not had special training. But the obscurity of many scientists goes far beyond these necessary conditions. For proof of this, I offer two facts: First, that many scientists get simpler and clearer as they grow older: their worst stage is usually when they are showing off as newly fledged Ph.D.'s at a scientific meeting; and second, that the leaders are usually among the best writers."

MAGAZINE ARTICLES

Recent popular magazine articles on health or of medical import:

"The Great Art of Getting Well." Marshall Sprague. *Good Housekeeping Magazine*, August, 1942.

"Worries Are Family Termites." William M. Marston. *Better Homes and Gardens*, August, 1942.

"Mumps." Herman N. Bundesen, M.D. *Ladies' Home Journal*, August, 1942.

"How are Your Nerves?" James S.

Warren. *Cosmopolitan Magazine*, August, 1942.

"Formula for Fitness." Ryllis and Omar Goshin. *Cosmopolitan Magazine*, August, 1942.

"Hotels into Hospitals." Charlotte Muret. *Harper's Magazine*, August, 1942.

"Medical Action at Pearl Harbor." W. H. Michael. *Harper's Magazine*, August, 1942.

(The above is not presented as a complete list and the articles cited are not necessarily recommended.)

JOTTINGS

Education of the public regarding methods for the prevention of mosquito breeding may take on a new significance in some parts of the country as a result of the rather clear identification of the rôle of a common variety of culex mosquito in the transmission of equine and St. Louis encephalitis. Recent epidemic experience in the northwestern part of the country has rather definitely incriminated at least one variety of the culex mosquito as a vector and a reservoir of the encephalitis virus. Heretofore, extermination of this type of mosquito has been undertaken primarily for reasons of comfort. It now appears that this insect may be a very formidable enemy of health, making its extermination an important measure in disease prevention. . . . While it is perhaps a little out of the field of this column, we cannot resist commending to all readers in the public health and medical fields the very unusual paper by Dr. Walter C. Alvarez of Rochester, Minn., on the subject of Constitutional Inadequacy. This paper appeared in the *Journal of the American Medical Association*, July 4, 1942. Few writers have presented in so short a compass as much basic material contributory to an understanding of the limitations and resources of our friends, our fellow workers, and ourselves as does Dr. Alvarez in this paper. . . . Although the appointment of Dr. Ernest L. Stebbins as Commissioner of Health of the City of New York was announced in the last issue of the *Journal*, we wish to extend our somewhat belated congratulations to him in behalf of all those engaged in health education. Dr. Stebbins's position is one of outstanding importance both locally and nationally. He is highly qualified to fill the post and under his direction it is expected that the health education activities of the department will be carried on with all the resources circumstances afford. . . . Another gratifying appointment is that of Dr. Frank Calderone as Secretary of the Department of Health of the City of New York. Dr. Calderone assumes this important position after a long and varied experience as a health officer and public health teacher. . . . The increasing toll of industrial accidents in war plants and of accidents affecting war workers has led the National Safety Council to intensify its educational program in this field. Activities of the Council directed toward the elimination of accident factors are being expanded under the direction of Dr. Ned H. Dearborn, newly elected executive vice-president and managing director of the Council. A goal of 5 million dollars has been set to meet the needs of the Council's enlarged educational program. In addition to direct aid to industry, a portion of this fund will be utilized to assist local safety councils and organizations interested in industrial, home, farm, and street safety. . . . A series of articles on various phases of the school health program that merit the thoughtful consideration of all medical and public health personnel is found in the *New York State Journal of Medicine*, issue of August 1, 1942. These articles are indicative of the efforts that are being made to place school health programs on a more comprehensive and genuinely

educational footing. . . . Two excellent films dealing with industrial hygiene are now available. One is produced by the U. S. Public Health Service under the title "Save a Day." It gives a very comprehensive account of the activities of the Industrial Hygiene Division of the National Institute of Health. Examples of effective industrial control of dust and poisons, research in this field, and the work of plant dispensaries are among the subjects covered. The film is one reel in length and is available at reasonable prices in 16 and 35 mm. prints with sound. Write to the Federal Security Agency, U. S. Public Health Service, Washington, D. C. for further information. The second recommended film on industrial hygiene is entitled "We're On the Spot." From the standpoint of content, this is an outstanding presentation. The film emphasizes certain practical safety precautions applicable to all industrial plants. Prints may be bought or rented from Vision Educational Productions, 509 Fifth Avenue, New York, N. Y. The film is available in 16 and 35 mm. prints, sound or silent versions. There is also a sound-slide version available in 35 mm. prints. . . . For an article on physical education that "makes sense" read "Physical Training in the Army Air Forces," by Major General Walter R. Weaver, in the March-April, 1942, issue of the *Air Forces News Letter*. . . . The Greater New York Safety Council, taking cognizance of "off-the-job" accidents, recently published the following "Victory Verse":

"Joe works hard at his milling machine
Always on the alert—
He crosses the street when the light is green—
Knowing he won't be hurt.
He keeps his home safe—and his family too—
For Joe has a *Victory job* to do!"

BOOKS AND REPORTS

Memorable Days in Medicine. *A Calendar of Biology and Medicine—By Paul F. Clark and Alice Schiedt Clark. Madison: University of Wisconsin Press,* 1942. 305 pp. Price, $2.00.

This calendar furnishes a practical way of finding at a glance the dates of births and deaths of prominent physicians and of notable events in medicine. There are also included notes on many hospitals with the dates of their foundation, the names of the architects who built them, and some of the prominent names connected with them; types of medicine in the various countries of the world, a list of Saints who in one way or the other must be remembered in connection with the medical art, and a number of other interesting facts. There are sketches of some 469 physicians which include most of the great founders as well as some of the notorious quacks who flourished from time to time. These are necessarily short but tell why these men were great, and in many instances, interesting personal characteristics are given.

As far as possible the birth dates rather than those of the deaths are given, but there is difficulty in ascertaining some of these, even those of the most famous. The compilation has engaged the authors for a number of years and has served in part as a basis for exhibits on medical history and biography in the Memorial Room of the University of Wisconsin Medical School.

The selection of subjects is good, but presumably many readers will detect omissions which they regret. The authors have foreseen this and tell us they have omitted many of their own favorites. The cross-referencing is fairly complete, though there are omissions which might leave the average reader with a false impression of actual priority of discoveries. A notable example of this concerns the discovery of ether anesthesia.

There is a good biography and an excellent index. The volume is a distinct addition to the study of medical history, to which too little time is given in practically every medical school, in spite of the fact that great leaders and teachers, like Welch and Victor Vaughan, have stressed its importance in medical education.

The printing and make-up are excellent. There are 29 illustrations, most of which are of persons. The book opens for January 1 with the Hippocratic Oath, which the authors offer as the best of all New Year's resolutions.

MAZŸCK P. RAVENEL

Outlines of Food Technology— *By Harry W. von Loesecke. New York: Reinhold Publishing Corp.,* 1942. 505 pp., 84 ills. Price, $7.00.

With the present interest in nutritional problems, it is fortunate to have a book dealing with food technology. This book will be very valuable to many nutrition workers since the information is given in rather complete but concise form. Practically all available foods and food products are discussed both from the point of view of production, and methods of handling before purchase by the consumer. Special chapters are devoted to storage and marketing of fruits and vegetables and preservation of foods by freezing.

No attempt is made to give the nutritive value of the different foods or the effect of processing on the degree of retention of the more important nu-

trients. Since the author had the advice of some of the leading authorities in food technology during the preparation of this book, the information can be accepted with confidence.

This book will be a very handy reference to public health workers.

C. A. ELVEHJEM

Source Book of Medical History—*By Logan Clendening, M.D. New York: Hoeber,* 1942. 685 pp. Price, $10.00.

Dr. Logan Clendening has rendered a useful service in compiling a *Source Book of Medical History.* The compendium spans the time from 1900 B.C. to 1895 A.D.; from the Kahun Papyrus to Roentgen's contribution "On a New Kind of Ray."

The compiler's lot is never fully a happy one for try as he will he is bound to displease. He is naturally exposed to the critical challenge, "why this selection and not *that* other one?" and most readers of this work are likely to have unique ideas as to what *should* have gone into the collection.

This much, however, can be said for Dr. Clendening's compilation—that whatever may be its sins of omission—it is without those of commission. Every item given is worthy of inclusion. And especially noteworthy are the texts culled from non-medical literature which properly belong to medical history, items such as those drawn by the author from Aristophanes' "Plutus," Plato's "Phaedo," and from the writings of Molière, Thackeray, Dickens, and others.

The virtue in going back to the original sources is to gather a first hand appreciation of the men and the works that are the *Bausteine* of medical history. But few of the selections included in the Clendening book are given in their entirety. Hence, the question arises, "Can one envisage the block by its chips?" The compilation really represents a double selection: first, as to what works, and second, as to what fragments thereof were to be published. The author palpably had to choose between including fewer "whole" examples, and giving a larger number of partial ones. He chose the latter. The end result is rather good. The work certainly offers a good and instructive sampling of the classics in medicine.

It can be read as a sketch book of medical history, for the chronological arrangement of the abstracts does offer one a rather loose and large outline of "progress in medicine."

Each chapter is preceded by a brief discussion of the period dealt with, and a good reference list is provided for each period. IAGO GALDSTON

Health in Schools—Twentieth Yearbook: *Includes Report of the Executive Secretary and List of Members. American Association of School Administrators: 1201 Sixteenth Street, Washington, D. C.,* 1942. 544 pp. Price, $2.00.

This is the Report of 1942 of the Commission on Health in Schools representing the American Association of School Administrators. It starts by discussing the Organization and Administration of the General Program and the Guidance of Individual Pupil Health. The chapter on Guidance is largely a presentation of procedures in school health services.

These general chapters are followed by discussions of health instruction, physical education and recreation, mental hygiene, special programs for the physically exceptional, the control of communicable disease, emergencies and their treatment, the type of environment needed to make possible a healthful school, the functions and preparation of school health personnel, as well as administrative practices, coördination of health agencies, and the legal aspects of this intensively specialized program.

The value of the report is greatly enhanced by a bibliography divided by chapters. A section on methods of appraisal of the program, in which various types of tests and measurements are discussed, gives great aid to the school or health administrator who really wishes to know the status and progress of the various activities involved. School health programs fail largely from lack of information as to the program, as to what other schools are accomplishing, and as to the improvements and checks that are possible.

Since this text will go into the hands of a great majority of our school administrators, it should have great influence for good on their thinking and procedures. C. H. KEENE

Rabies—By Leslie T. Webster, M.D. *New York: Macmillan,* 1942. 168 pp. Price, $1.75.

This book contains less than one hundred pages of reading matter and fifty or more pages of sketches or graphs, tables, references, and appendices.

The author recognizes that a simple, critical, and fairly inclusive treatise on rabies should be available to all and with this in mind directs chief interest toward giving the best answers of the day to practical questions. The subject matter is focused on two chief problems and accordingly the text is prepared in two parts, diagnosis and prevention.

The book does not furnish a solution to all questions pertaining to rabies but is a clear, concise, and accurate assemblage of the essential information and brings the subject up to date. It consists mostly of facts and does not theorize to any extent. One who reads its contents will gain thereby and will not be left in darkness on the subject.

From the standpoint of diagnosis in suspected animals, and of prevention of human cases by vaccination, the mouse test which was developed by the author is recommended as a measuring tool, to be used as a means of final decision in the diagnosis and as a quantitative measure of potency of vaccines.

The author gives a brief critical but fair review and analysis of controlled experiments on vaccination, showing inconsistency of results, the necessity of controlled field experiments, the lack of evidence that the use of vaccine after exposure offers any protection, recommends that persons exposed should have treatment only with vaccines proved potent and outlines a procedure to be followed in exposed persons. He discusses the probability of a difference in strains of virus but apparently overlooked differences indicated by some of the controlled experiments.

The second chapter "Is Rabies a Myth?" does not seem to fit into the sequence of the descriptive text and might better not have been included in the book or, with the last paragraph omitted, could have been included in the first chapter. Also there might be some difference of opinion as to whether the term "myth" is properly used in this sense, and if so some substantiative reasons for the question should have been given.

The book contains much good sense and a lot of practical knowledge which should be available for ready reference to students, researchers, physicians, veterinarians, and other interested persons, especially those having some knowledge of the disease.

M. F. BARNES

Family Nutrition—*By Rachel M. Winlock, Emerson R. Sausser, Joseph Stokes, James J. Waygood, Anna de Planter Bowes, Pauline Berry Mack. Published by the Philadelphia Child Health Society,* 1942. 106 pp. Free.

A committee of six medical and nutrition scientists has written a compact, authoritative, easily read, well illustrated monograph on "Family Nutrition." Its popular style adapts it to

the use of lay groups. Its complete bibliography is valuable for the person who may wish to read original sources.

The following chapter titles: Nutrition and the Nation's Fitness, the Nutritional Status of Human Beings, How Nutritional Status in Human Beings Is Measured, The Dietary Value of Common Foods. The Nutritional Needs of People, The Relationship of Food Intake and of Appetite to Nutritional Status and to Resistance to Disease, Balanced Diets and Balanced Budgets, are self-explanatory as to content.

Chapters II and III give suggestions and references which might be helpful in planning large scale mass studies using human subjects. To the reviewer this seems particularly useful at this time when communities need to learn more about the nutrition status of their own families.

The monograph is offered for free distribution in the interest of National Defense. Its publication was made possible by a Grant-in-Aid from the Beneficial Industrial Loan Corporation. Those teaching nutrition in a community program, in formal school classes, and others, may obtain single copies while the supply lasts by writing to the Philadelphia Child Health Society, 311 South Juniper Street, Philadelphia, Pa.

AGNES ENGLISH VAUGHN

The People Against Tuberculosis —The Story of the Christmas Seal—*By Leigh Mitchell Hodges. New York: National Tuberculosis Association,* 1942. 54 pp. Price, $1.00.

From an acorn to a sturdy oak in thirty-five years may well epitomize this fascinating story of a simple idea. The value of the tale is enhanced by the fact that the author was one of the planters of the acorn and has witnessed its growth to dimensions far beyond his fondest dreams. While the idea originated in foreign soil—Denmark—it was in the United States of America where the soil, climate, and conditions made for its maximum development.

The Christmas Seal has been the tie which has bound together the complex organization of social forces which we today call the "tuberculosis movement." Mr. Hodges reveals dramatically how the germination of the idea was beset with all but disastrous difficulties. He gives due credit to Einar Holboell of Denmark for the idea of the Christmas Seal and Miss Emily Bissell of Wilmington, Delaware, for the adaptation of the idea in this country. Woven into the story of the Seal is the scientific side of tuberculosis work.

Throughout the account, one is impressed with the basic factors which go to make a successful social effort—a need to be met; a program for meeting that need; the translation of that program into a working organization; the adequate financing of the organization and intelligent leadership. In short the story of the Christmas Seal is also the story of the other factors in the successful combat of the scourge of society.

The little volume is well printed, adequately illustrated, and dramatically, though truthfully, written. Its publication served to mark the fiftieth anniversary of the founding of the first voluntary organization in the world—The Pennsylvania Society for the Prevention of Tuberculosis in 1892.

ROBERT G. PATERSON

Preventive Medicine in Modern Practice—*Edited Under the Auspices of the Committee on Public Health Relations of the New York Academy of Medicine. New York: Hoeber,* 1942. 851 pp. Price, $10.00.

Here is a book the like of which has long been awaited by the medical profession, and although medical students are unaware of the fact they too have badly needed such a volume. *Preventive Medicine in Modern Practice* is essentially what the title implies: a

discussion of the problems of preventive medicine which are encountered by the physician in his daily practice and, in so far as possible, the presentation of solutions of these problems.

The range of subjects covered in this volume is comprehensive: socio-biological aspects of preventive medicine, 56 pages; clinical aspects, 565 pages; environmental aspects, 109 pages; organizational aspects, 93 pages. This seems a sound proportional allotment of space to these respective major divisions, particularly so when one considers that this volume is designed for the practitioner and student rather than for the public health officer. But even for the latter, especially in fields from which he has permitted his routine work to withdraw him, there is here presented a great body of factual information and to no small extent a reorientation.

Aside from the value of this book as a book, the fact that it has been published by the New York Academy of Medicine is of unusual significance. The Academy is one of the great professional organizations of the United States. It has acquired a reputation for sanity, realism, and courage. While it observes a safe conservatism, it is not unwilling, if the occasion arises, to face and consider and, if indicated, to act favorably upon any pertinent medical problem, even though the consideration and action be outside the realm of convention and tradition. That such an organization has published this volume not only gives assurance of the book's soundness, but indicates the Academy's conviction that preventive medicine presents to the practitioner both an opportunity and an obligation.

The volume is not the product of any one author, but represents the joint effort of a number of authorities, carefully selected because of competence in their respective fields. Always, of course, a volume so produced, while strong in exactness and detail, carries with it the danger of non-continuity and spottiness. In this instance lack of uniformity and unity are satisfyingly offset by what must have been a very hard working editorial committee of physicians eminently suited to the task. Incidentally, the preface lays down a fine philosophy.

H. S. MUSTARD

Civil Defense Measures for the Protection of Children: Report of Observations in Great Britain, February, 1941—*By Martha M. Eliot, M.D. Washington, D. C.: Children's Bureau*, 1942. 186 pp. Price, $.30.

No one interested officially or otherwise in the health and welfare of mothers and children can well afford to miss Dr. Eliot's report on her studies made in Great Britain as a member of the United States Civil Defense Mission which was sent to that country early in 1941. Since Pearl Harbor, the protection of children under bombing, the effect of war on children, and the many problems incident to evacuation from target areas are matters that have taken on an urgent significance for Americans.

Dr. Eliot of all persons was the one to set forth for us the details of the British experience and the lessons to be learned. It may be that some of the medical and social unpreparedness in cities and rural areas will be corrected on this side of the Atlantic by the time we are bombed. But as a preliminary to correcting this situation we shall have to give up a part of our smug complacency promptly.

With all the blueprinting that this report makes possible for us, we will do well if we can approach the success of our British friends in child care under bombing. The long range planning and training is described and then the first Major Evacuation from city to country during the four days, September 1–4,

1939. A total of 607,635 adults and children were removed from London to rural areas without a casualty. There were roughly 350,000 school children with their teachers, and 230,000 mothers with children under 5 years old. The others were expectant mothers and the handicapped and the blind.

The early chaos due in part to the lack of trained social workers in the reception areas and the inability to fit particular children into rural household billets on a selective basis resulted in a trek back to the city. This trek, of course, was also due to the failure of the bombing to begin. The second general evacuation from London and other cities in September, 1940, found better medical inspection services to control pediculosis, scabies, and impetigo. Enuresis was also an outstanding worry. Dr. Eliot's description of the ingenuity of official and voluntary agencies (The Women's Voluntary Services—W.V.S.—particularly) working closely together to meet the unexpected makes her well documented report indeed a fascinating one to read.

HUNTINGTON WILLIAMS

Nursing: An Art and a Science—*By Margaret A. Tracy. (2nd ed.) St. Louis: Mosby,* 1942. 754 pp. Price, $3.50.

Nursing, An Art and a Science has been revised to make it more useful as a textbook for student nurses. It is divided into three parts: General Considerations, Diagnostic Procedures, and Therapeutic Procedures. Supplementary to the text is a list of commonly used nursing procedures. In the preface to the second edition the author states, "Wholly new is the chapter concerned with hospital housekeeping . . ." "The chapter on charting has been greatly expanded."

This book, written primarily as a text for student nurses, is excellently planned and organized. The subject is simply and logically presented, and can be followed readily by the student. An attractive feature is the use of 183 well selected illustrations. The nurse is given recognition as a health teacher, and opportunities are planned for her to integrate her teaching while rendering regular daily duties. This is an excellent procedure.

Although the second edition of this book is an improvement on the one previously published, the inclusion of nursing procedures is questionable. The author acknowledges the procedures are used in the University of California Hospital and cannot be adopted wholly by any other institution. The printing of them covers 162 pages. The book is heavy and unwieldy.

The volume seems well adapted for the purposes for which it was intended. It is recommended for use in schools of nursing and as a reference book for public health nurses.

FRANCES F. HAGAR

Manual for the Conduct of Classes for Expectant Parents—*By Ellen D. Nicely, et al. (2nd ed. rev.) (1001 Huron Road) Cleveland: Child Health Association,* 1942. 167 pp. Price, $1.50.

The fact that the Cleveland Child Health Association, under Dr. Richard Bolt's leadership, has been able to maintain such successful classes for expectant parents on a community-wide basis for both well-to-do patients and for low income groups has long caused comment. It is therefore helpful to have a detailed account, lesson by lesson, of the material that is presented in these classes. The new manual is helpful in that it also gives samples of publicity folders, admission card, etc., in the classes. The material will be useful to anyone who is faced with the problem of developing educational work for expectant parents.

LEONA BAUMGARTNER

Personality and Mental Illness: An Essay in Psychiatric Diagnosis—*By John Bowlby, M.D. New York: Emerson Books, Inc.*, 1942. 280 pp. Price, $2.75.

This book represents a serious attempt to bring about a greatly needed new orientation in an old subject. To this end, the author who is Psychiatrist at the London Child Guidance Clinic, and Physician to the London Clinic of Psychoanalysis, has made his approach to the problems of mental disease by evaluating basic personality traits rather than the surface symptoms of mental disorder.

A discussion of the work on personality types and their relations to neuroses and psychoses done in the past including modes of psychiatric classification proposed by Kraepelin, Bleuler, Adolf Meyer, Kretschmer, Kahn and others introduces the various aspects of this complicated field of scientific investigation. This is followed by a schedule of personality traits characteristic of the major types of personality, with emphasis on the schizoid and syntonic varieties, which will be useful in distinguishing them, and a practical clinical method of measuring and describing personality forms. Tabulations of these traits for 36 patients who have had a psychosis and for 29 patients suffering from neurotic symptoms are presented, with descriptions of typical unstable personalities. Thirty-three traits are selected as being particularly significant for diagnostic purposes.

The section of the book devoted to the psychoneuroses contains many worth while suggestions for diagnosis and regrouping of the forms, in a classification scheme that has some clinical advantages. As the author himself states, a great deal of the subject is still in stages of research. Throughout the text a number of attractive research leads are offered in the field of psychopathology where original work is becoming more and more urgent.

Although many of the conclusions are tentative in character, the ideas presented and the method of study proposed make the book a valuable contribution to the literature on psychiatry, and students of this subject will find much of interest in its pages.

NOLAN D. C. LEWIS

Our Sex Life—*By Fritz Kahn, M.D. (2d ed.) New York: Knopf*, 1942. 459 pp. *Translated from the German by George Rosen, M.D.* Price, $5.75.

This book is written for everyone, but it is doubtful if everyone would profit by its perusal. It covers a wide and problematical field of information. One could question whether its general reading would be very helpful. It tries to cover sex from physiology to pathology.

Many statements are either inaccurate or not proved. Though some of these inaccuracies are not very important, they do tend to discredit the author as an authority.

The subject seems to be approached more from the standpoint of the individual than of society. It is questionable if the cumulative experience of mankind in developing civilization can be ignored regarding sex as well as other important matters. One might suggest that civilizations which have become engrossed in the various pleasures of living have either fallen or deteriorated and failed to progress.

The author, recognizing the biologic importance of sex, seems to stress the development of the sexual drive rather than the fundamental biologic purpose of sex.

FRED L. ADAIR

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Captain of the Illnesses—Standing first among the disabling diseases, arthritis cannot be ignored by any health worker, however little he may be able to do about it. So this primer, prepared by an outstanding committee, becomes an indispensable addition to our professional libraries.

ANON. Primer on Arthritis. J.A.M.A. 119, 14:1089 (Aug. 1), 1942.

Health in Schools—Ten considerations in formulating any school health program are set forth to open a symposium: a measured viewpoint, based upon ascertainable fact, keeping within bounds of scientific knowledge, and attainable goals, avoiding outworn traditions, seeking quality rather than quantity of service, providing follow-up, utilizing all professional services, always respecting the chief objectives of schooling, and coördinating with community services—these are the ten.

BAUER, W. W. School Health and the Nation's Health (and two related papers). New York State J. Med. 42, 15:1454 (Aug. 1), 1942.

Soldier's and Sailor's Shots—Just in case someone asks you: smallpox vaccine, typhoid vaccine (with paratyphoid A and B added, again), and tetanus toxoid are given to all military personnel. Yellow fever vaccine, originally administered to all, now is to be given only to those about to depart for areas where the disease is endemic. Cholera and plague vaccines are also ready for troops and naval forces who are to be sent to countries where they may be exposed to these diseases. Typhus vaccine is under study.

ENDERS, J. F. The Present Program for the Immunization of Military Personnel. New Eng. J. Med. 227, 5:162 (July 30), 1942.

More Praise for Sister Kenny's Method—In this Canadian symposium on poliomyelitis and encephalitis, there are eleven papers on the epidemiology, diagnosis, pathology, and treatment (including the Kenny Method) of poliomyelitis and three on encephalitis. There is so much here that this note can do no more than to call your attention to the existence of the mine of information.

JACKSON, F. W., *et al.* Poliomyelitis and Encephalitis. Manitoba, 1941. Canad. Pub. Health J. 33, 6:242 (June), 1942.

Deficiency States, Clinical and Subclinical — Some clinicians, who recognize only the frank manifestations, insist that deficiency diseases are rare. But researchers who have conducted extensive surveys know that deficiency states are widely prevalent. The author discusses some solutions for this seeming impasse. Incidentally, he points out that some changes previously thought to be attributable to the aging process are manifestations of dietary deficiencies.

KRUSE, H. D. A Concept of the Deficiency States. Milbank Quart. 22, 3:245 (July), 1942.

Plumbism—Through its laboratory service, a local health department was able to study the incidence of lead poisoning in its city. Three out of five cases were among children (from chewing lead-painted toys). The adult cases were mostly of industrial origin.

MCDONALD, J. M., and KAPLAN, E. Incidence of Lead Poisoning in the City of Baltimore. J.A.M.A. 119, 11:870 (July 11), 1942.

Health Under Nazi Rule—Though we know little of current conditions in Paris, the author of this paper brought with him, when he left near the end of 1941, some suggestive statistics. Tuberculosis increased during the first year of food restrictions, and mortality was highest in the most neglected age group—the old people. It is reasonable to assume that conditions are much worse now.

MINOLI, R. F. Food Rationing and Mortality in Paris, 1940–1941. Milbank Quart. 20, 3:213 (July), 1942.

Help!—A thousand-plus health departments answering a questionnaire report that they employ full-time more than 17,000 technically trained persons, have existing vacancies for another 1,000, and need still another 4,000 to take care of wartime activities. Hospitals are short-handed too.

PERROTT, G. ST. J., and DORN, H. F. Current Needs for Health Personnel. Pub. Health Rep. 57, 27:997 (July 3), 1942.

Sex and Sickness—Women are more frequently ill than men, but mortality rates are higher among the males. The authors looked into this seeming paradox of sex differences in ill health. Though the weaker sex undoubtedly enjoys more illnesses, the laughingly called stronger sex is hit harder when sick. You'll want to see the statistics.

PREAS, S., and PHILLIPS, R. The Severity of Illness among Males and Females. Milbank Quart. 22, 3:221 (July), 1942.

Wartime Nursing Adjustments—Nurses by thousands are needed by the Army and Navy. The reduced nursing personnel that remains at home must be utilized most effectively to cover the greatly increased need for nursing in factories, clinics, health agencies. The job of making necessary adjustments, selecting trained personnel and trainees, and planning community services is a large order. All of us should know how it is being done, and this paper tells us.

SHEAHAN, M. W. Public Health Nursing in the War. Pub. Health Nurs. 34, 7:371 (July), 1942.

Needless Worries Department—There is no need for fear that we shall have insufficient or inadequate food supplies for ourselves, and to meet the "fillable" needs of our allies in 1942 or the years that lie ahead, concludes this nutritionist-economist.

WELLS, O. V. Can We Produce Enough Food? Pub. Health Nurs. 34, 7:361 (July), 1942.

"Victory—the Only Plank"—"The professional, long operating at the will of the people, long granted special privileges by the people, tends to forget the source or the purpose of that privilege." Addressed to sanitary engineers, this admonition may well be taken to heart by all of us, in these days when our country has but one purpose.

WOLMAN, A. A Platform for the A.W.W.A. in the Coming Year. J. Am. Waterworks Assn. 34, 7:979 (July), 1942.

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PHYSIOLOGICAL HYGIENE. By Cleveland Pendleton Hickman. rev. ed. New York: Prentice-Hall, 1942. 482 pp. Price, $3.25.

BACTERIOLOGY. By Einar Leifson. New York: Hoeber, 1942. 526 pp. Price, $5.00.

OCCUPATIONAL TUMORS AND ALLIED DISEASES. By W. C. Hueper. Springfield, Ill.: Thomas, 1942. 896 pp. Price, $8.00.

STEDMAN'S PRACTICAL MEDICAL DICTIONARY. By Stanley Thomas Garber. 15th ed. Baltimore: Williams & Wilkins, 1942. 1257 pp. Price, $7.00; Thumb Indexed $7.50.

THE MENTAL GROWTH OF CHILDREN FROM TWO TO FOURTEEN YEARS. By Florence L. Goodenough and Katherine M. Maurer. Minneapolis: University of Minnesota Press, 1942. 130 pp. Price, $2.50.

HOUSING YEARBOOK 1942. Coleman Woodbury and Edmond H. Hoben, Editors. Chicago: National Association of Housing Officials. 1942. 192 pp. Price, $3.00.

AMERICAN RED CROSS HOME NURSING. By Lona L. Trott. Philadelphia: Blakiston, 1942. 429 pp. Price, $.60.

THE BIOLOGICAL ACTION OF THE VITAMINS. E. A. Evans, Editor. Chicago: University of Chicago Press, 1942. 277 pp. Price, $3.00.

PSYCHOTHERAPY IN MEDICAL PRACTICE. By Maurice Levine. New York: Macmillan, 1942. 320 pp. Price, $3.50.

TUBERCULOSIS SANATORIUM DIRECTORY 1942. Compiled by the National Tuberculosis Association, New York. 1942. 185 pp. Price, $1.50.

STANDARD NOMENCLATURE OF DISEASE AND STANDARD NOMENCLATURE OF OPERATIONS. Edwin P. Jordan, Editor. Chicago: American Medical Association, 1942. 1,022 pp. Price, $4.00.

DIGEST OF LAWS DEALING WITH PROSTITUTION AND OTHER SEX OFFENSES. By George Gould and Roy E. Dickerson, Editors. New York: American Social Hygiene Association, 1942. 453 pp. Price, $5.00.

THE NATIONAL FORMULARY. 7th ed. Prepared by the Committee on National Formulary of the American Pharmaceutical Association, 1942. Washington: American Pharmaceutical Association, 1942. 690 pp. Price, $6.00.

TEACHING ATHLETIC SKILLS IN PHYSICAL EDUCATION. By Henry C. Craine. New York: Inor Publishing Co., 1942. 236 pp. Price, $2.75.

COLLECTED REPRINTS OF THE GRANTEES OF THE NATIONAL FOUNDATION FOR INFANTILE PARALYSIS. 1941. Vol. II. New York: National Foundation for Infantile Paralysis, 1942.

NUTRITION AND CHEMICAL GROWTH IN CHILDHOOD. Vol. I, Evaluation. By Icie G. Macy. Springfield, Ill.: Thomas, 1942. 432 pp. Price, $5.00.

A SURVEY OF MUNICIPAL AND STATE MEAT INSPECTION. By Bert W. Bierer. Mimeographed supply limited. Published by Author, Box 83, Camden, Del. Price, $.50.

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DIRECTORY OF VENEREAL DISEASE CLINICS, 1942. Washington: United States Public Health Service. 136 pp.

A BRAND NEW BABY. By Margaret A. Stanger. Boston: The Beacon Press, 1942. 132 pp. Price, $1.75.

ASSOCIATION NEWS

SEVENTY-FIRST ANNUAL MEETING

ST. LOUIS, MO., OCTOBER 27–30, 1942

Meeting Headquarters: Municipal Auditorium

Residence Headquarters: Hotels Jefferson and Statler

RAILROAD FARES FROM VARIOUS POINTS TO ST. LOUIS, MO.

American Public Health Association
October 27–30, 1942

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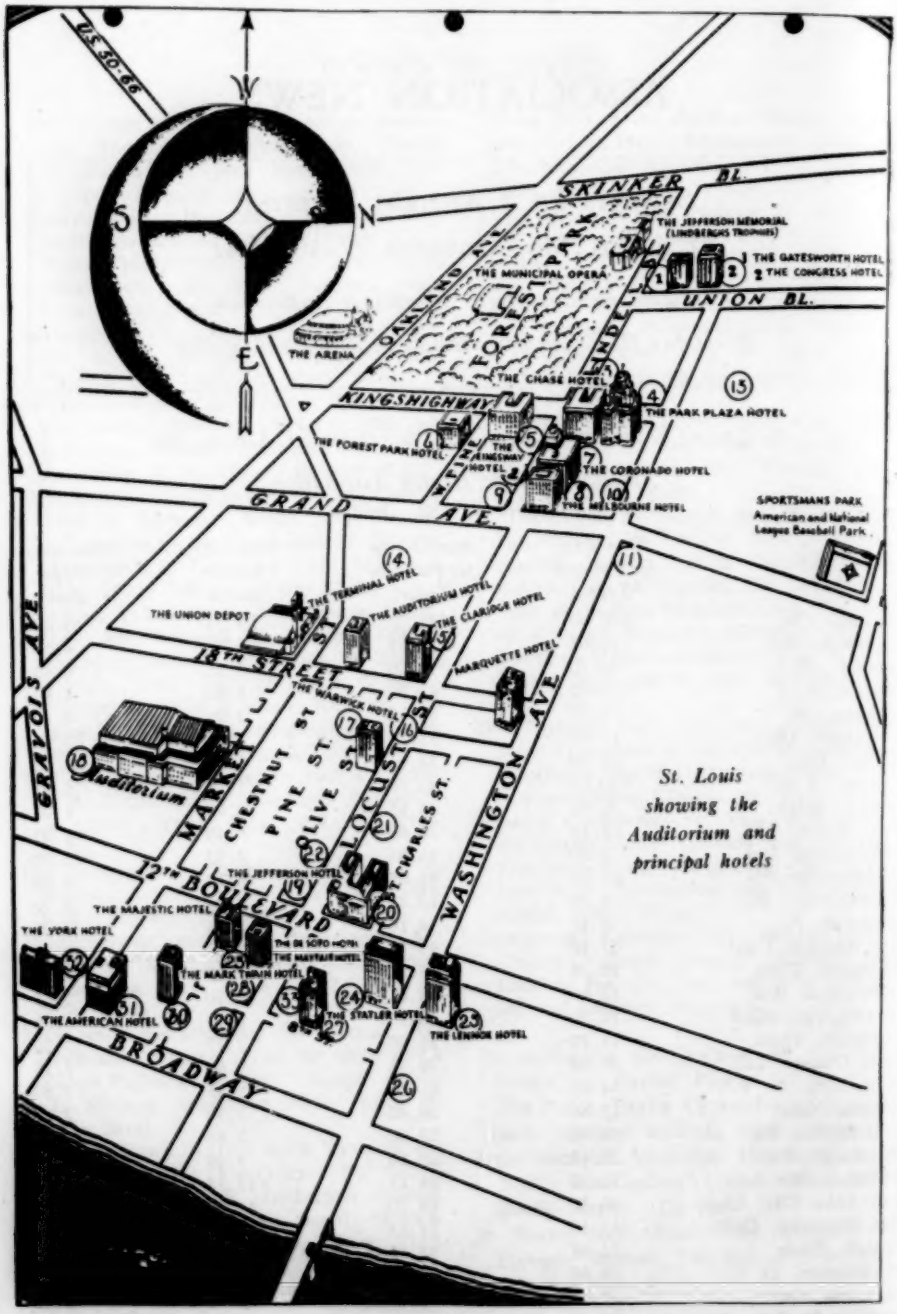
Toronto, Ont.	24.90	44.30	5.80	4.40
Vancouver, B. C.	72.95	94.15	17.35	13.20



St. Louis showing the Auditorium and principal hotels

American Hotel	31	Gatesworth Hotel	1	St. Louis University	9
Bishop Tuttle Memorial	19	Jefferson Hotel	20	Scruggs-Vandervoort-Barney	28
Board of Education	33	Kingsway Hotel	5	Sheldon Memorial	10
Chase Hotel	3	Lennox Hotel	25	Statler Hotel	24
Claridge Hotel	15	Mark Twain Hotel	30	Stix, Baer & Fuller	26
Congress Hotel	2	Mayfair Hotel	27	Third Baptist Church	11
Coronado Hotel	7	Melbourne Hotel	8	Vashon High School (Negro)	14
DeSoto Hotel	23	Municipal Auditorium	18	Warwick Hotel	17
Elks Club	12	Park Plaza Hotel	4	Y.M.C.A.	16
Famous-Barr	29	Public Library	22	York Hotel	32
Forest Park Hotel	6	Roosevelt Hotel	13	Y.W.C.A.	21

RATES QUOTED BY ST. LOUIS HOTELS

Seventy-First Annual Meeting, October 27 to 30, 1942

AMERICAN PUBLIC HEALTH ASSOCIATION

ALL RATES QUOTED ARE FOR ROOMS WITH BATH ON EUROPEAN PLAN

Hotel	*Single*	*Double*	*Suites*
New Hotel Jefferson	$3.00–5.00–6.00–7.00	$6.00–7.00–7.50–8.00	$12.00–20.00
Statler	3.00–3.50–3.75–4.00	5.25–6.00–6.25–6.50	17.00–18.00
	4.25–4.75–5.00	6.75–7.00–9.00	
American	2.00–2.50	3.50–4.00	
Claridge	2.50–3.00	3.50–7.00	
Coronado	2.25 (shower)	4.50–5.00	6.00
	2.75		
DeSoto	2.65–up	4.00–5.00	8.00
Lennox	3.50–4.00–4.50–5.00	4.50–5.00–6.00–7.00	10.50–14.50
	6.00	8.00	
Mark Twain	2.50–4.00	3.50–5.00–5.50	
Maryland	2.25–2.50–2.75	3.25–3.50–3.75–4.00	
		4.50	
(without bath)	1.75–2.00	2.75–3.00	
Mayfair	3.00–3.50–4.00–5.00	4.00–4.50–5.50–6.00	
		7.00	
Melbourne	2.65–3.20–3.70–4.20	4.20–4.80–5.30–5.80	
		6.20	
Park Plaza	4.50	6.00–8.00	12.00–18.00
Warwick	2.00–2.50–3.00	3.00–3.50–4.00–4.50	7.00–10.00
		5.00	

.....(Cut off on this line and mail to the hotel of your choice).....

HOTEL RESERVATION BLANK FOR THE ST. LOUIS MEETING AMERICAN PUBLIC HEALTH ASSOCIATION, OCTOBER 27–30, 1942

To .....
(Name of Hotel)

Please reserve for me ..... rooms for ..... persons for the A.P.H.A. Meeting.

Single room ..... Double room .....

Maximum rate per day for room $..... Minimum rate per day for room $.....

I expect to arrive ..... If date of arrival is changed I will notify you at least 24 hours in advance.

Please acknowledge this reservation.

Name .....

Street Address.....

City..... State.....

THE ST. LOUIS ANNUAL MEETING, OCTOBER 27–30

THE program of the Association's Wartime Conference on Public Health was published in the August issue. Elsewhere in that issue, specifically on page 847, the membership was assured that plans for the 71st Annual Meeting were proceeding as scheduled and that there was every reason to believe they would be carried through. It was pointed out that professional public health workers need to come together, as England has discovered, not in spite of the emergency, but because of it, in order that new information and experiences may be shared for the benefit of the nation. The health protection of the civilian population, to which we as a profession are dedicated, and the health protection of the armed forces, in which many Association members are now engaged as individuals, are essential to the successful prosecution of the war. Attendance at St. Louis will help us fight the war better.

Since the August *Journal* went to press, Surgeon General Parran has agreed to preside at the General Session on "War and the Health Department," on Wednesday morning, October 28. Hon. Charles P. Taft has been invited by the Program Committee to speak from the national standpoint; Dr. Wilton L. Halverson, Los Angeles County, will speak as the Health Officer of a western county and Dr. Alfred Burgdorf, Hartford, Conn., as the Health Officer of an eastern city.

Word has come that three distinguished representatives of Great Britain will be present, in addition to the Hon. Malcolm MacDonald, High Commissioner for Canada, whose attendance was announced previously. Sir John Orr, eminent nutritionist, will speak at a luncheon in his honor sponsored by the Food and Nutrition Section, on Tuesday, October 27. Professor W. M. Frazer, Medical Officer of Health of the City and Port of Liverpool, Medical Officer to the Liverpool Education Authority and Professor of Hygiene at the University of Liverpool, will address the Health Officers Section. Dr. E. R. A. Merewether, representing the Ministry of Labour, factory medical inspector, and Lecturer on Industrial Hygiene at Aberdeen University, will be featured on the Industrial Hygiene Section program. Canada is sending a number of program participants as well as numerous delegates, and several of the Latin American republics will be represented.

Three conferences not described in the preliminary program have been definitely scheduled. One is a conference on Orthopedic Nursing, sponsored by the Joint Orthopedic Nursing Advisory Service, to be held on Saturday, October 24, and Sunday, October 25. It is planned primarily for nurses actively engaged in crippled children's services. Registration is limited to thirty, and will close October 1. Applications should be addressed to Jessie L. Stevenson, R.N., Joint Orthopedic Nursing Advisory Service, 1790 Broadway, New York, N. Y.

Another is a Conference of Directors of Local Health Service, for which arrangements are being made by Dr. Ben F. Wyman, Director of the Division of Rural Sanitation and County Health Work of the South Carolina State Board of Health. Very successful conferences under the same auspices were held last year at Atlantic City.

The third is new, and noteworthy not because of that alone, but because it is the culmination of a desire of several years' standing on the part of those who teach Preventive Medicine

and Public Health to undergraduate medical students to meet for purposes of acquaintanceship and discussion of mutual problems. A meeting of these "Associated Teachers of Preventive Medicine" will be held on Friday, October 30, at 9:30 A.M. Wilson G. Smillie, Professor of Public Health and Preventive Medicine, Cornell University Medical School, will preside. Dr. Leland W. Parr of the George Washington University Medical School, Washington, D. C., is acting as Secretary for the group and will be glad to receive suggestions for the meeting, which is being set up as an informal discussion of the problems of contemporary importance in this field of medical education.

Certain programs intentionally incomplete a month ago are being rounded out in tune with the times, among them the sessions of the Ninth Institute on Public Health Education. This has been printed in full as a separate and is available on request to the Central Office.

Reprints of the Preliminary Program from the August *Journal* will be supplied to anyone who wishes to send them to colleagues who have not access to the magazine.

The Chairman of the St. Louis Local Committee, Dr. Joseph F. Bredeck, announces that local affairs are in good order and that every effort will be made by him and his coworkers to fill the brief intervals between scientific sessions with visits to St. Louis institutions where inspiration and new ideas may be secured.

Reservations at the headquarters hotels, the New Jefferson and the Statler, should be made well in advance of the meeting, as should train reservations. Transportation is an important factor, and we can help the railroads, and assure our accommodations by reserving space and buying tickets early.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

E. J. Beckner, M.D., 106 East Second, Pratt, Kans., Director, Pratt County Public Health Unit

Leo Bernstein, M.D., M.P.H., Board of Health, Lihue, Kauai, T. H., Health Officer, Territorial Board of Health

John S. Coughlan, M.D., County Health Officer, Berkeley Springs, W. Va.

George R. Good, M.D., M.P.H., 1216 14th Ave., Altoona, Pa., District Medical Director, State Dept. of Health.

Oscar Harvey, M.D., 3200 W. Douglas, Wichita, Kans., Asst. Health Officer, Sedgwick County Health Dept.

Harvey B. Henry, M.D., 802 Norwood Bldg., Austin, Tex., City Health Officer, Luling, Tex.

Lester J. Kantor, M.D., D.P.H., Sells Indian Agency, Sells, Ariz., Senior Physician, U. S. Indian Service

Everett A. King, M.D., Tri-county Health Unit, Hardinsburg, Ky., Director

Elias W. Langs, M.D., Fairfax County Health Dept., Fairfax, Va., Asst. Health Officer, Northern Health Dist.

S. J. Maydet, M.D., 216½ E. Monroe, Springfield, Ill., District Health Supt., State Dept. of Health

William Pratt Scarlett, M.D., M.S.P.H., 205 Brown St., Morrilton, Ark., Director, Field Experience Center, State Board of Health

Harry F. Smith, M.D., Klamath Agency Hospital, Klamath Agency, Ore., Health Officer, U. S. Indian Service

Jules R. Thebaud, M.D., Service National d'Hygiene, Palais des Ministeres, Port au Prince, Haiti, Director General

Laboratory Section

William A. Boyles, M.S., State Board of Health, Jacksonville, Fla., Assoc. Bacteriologist, U. S. Public Health Service

L. Amy Darter, 125 Panoramic Way, Berkeley, Calif., Supervising Bacteriologist, State Bacteriological Laboratory

Frederick W. Hindley, Health Dept., City Hall, Newport, R. I., City Bacteriologist

Katherine Kesling, M.S., 4003 McCorkle Ave., Apt. 201, Charleston, W. Va., Junior Diagnostic Bacteriologist, State Hygienic Laboratory

Nathan C. Kirsch, M.S., 268 Hale, New Brunswick, N. J., Asst. to Head of Sterile Production Laboratories, Schering Corp.

George W. Malaney, 2029 Cleveland Ave., S., Canton, Ohio, Asst. Scientific Aide, U. S. Public Health Service

Vital Statistics Section

Myron S. Heidingsfield, A.M., Ph.D., College of William & Mary, Williamsburg, Va., Asst. Professor of Statistics

Engineering Section

Lieut. A. Harry Bliss, 1104 West 8th St., Santa Ana, Calif., Army Air Force Sanitary Corps

Corp. Charles S. Laubly, Station Hospital, Tyndall Field, Fla., Medical Corps, U. S. Army

Industrial Hygiene Section

August Baier, M.D., 1158 Chautauqua Pk., Des Moines, Iowa, Medical Director, U. S. Rubber Co.

Francis R. Holden, M.A., Ph.D., 835 Fifth St., Oakmont, Pa., Industrial Hygienist, Industrial Hygiene Foundation

Watson F. Rogers, M.D., American Viscose Corp., Parkersburg, W. Va., Industrial Physician

Food and Nutrition Section

Grafton D. Bowers, D.V.M., R. R. 3, Baton Rouge, La., Veterinary Sanitarian, East Baton Rouge City Parish Health Unit

Marie E. Dohm, M.A., 737 S. Wolcott St., Chicago, Ill., Nutritionist, Cook Co. Public Health Unit

Rose E. Koshetz, M.S., Hotel Woodward, 210 W. 55th St., New York, N. Y., Dietitian, Adelphi Hospital, Brooklyn, N. Y.

Reginald C. Sherwood, M.S., Ph.D., 2010 E. Hennepin Ave., Minneapolis, Minn., Manager, Research Laboratories, General Mills, Inc.

John B. R. Woolley, 307 Encine, San Antonio, Tex., Director of Food Control, San Antonio Health Dept.

Maternal and Child Health Section

Bret Ratner, M.D., 50 E. 78th St., New York, N. Y., Clinical Professor of Pediatrics, New York Univ.

Elizabeth P. Rice, M.S., 789 Howard Ave., New Haven, Conn., Director of Medical Social Service, New Haven Hospital

Marian E. Russell, M.S., 205 W. Wacker Drive, Chicago, Ill., Exec. Sec., American Association of Medical Social Workers.

Catherine S. Sherwood, M.D., 121 N. Fir St., Ventura, Calif., Pediatrician, Div. of Maternal and Child Hygiene, County Health Dept.

Public Health Education Section

Loyd W. Coe, State Capital, Room 1006, Lincoln, Nebr., Asst. Director, Div. of Public Health Education, State Dept. of Health

Miriam R. Hahn, 146 Filbert St., Hamden, Conn., Staff Member, Committee on Hygiene of Housing, A.P.H.A.

Kenneth F. Herrold, M.S.P.H., Bucknell Univ., Lewisburg, Pa., Instructor, Div. of Hygiene and Public Health

Anton T. Jirik, 1245½ W. Gouvernor St., Springfield, Ill., Supervisor of Exhibits, State Dept. of Public Health

Lillian C. Maynard, M.Ed., Deer Island, Boston, Mass., Student, Massachusetts Institute Technology

Bernice E. O'Brien, M.A., R.N., Glynn County Board of Health, Brunswick, Ga., Supervisor of Nurses

Frederic C. Woodward, LL.M., 122 S. Michigan Ave., Chicago, Ill., Chairman, Statewide Public Health Committee

Public Health Nursing Section

Marguirete M. Boom, 1004 Main St., Evanston, Ill., Public Health Nurse, Evanston Dept. of Health

Christine Causey, R.N., M.A., City Health Dept., New Orleans, La., Director of Nursing, Child Welfare & Community Health Assn.

Betty K. Clark, R.N., 1421 Home Ave., Berwyn, Ill., Public Health Nurse, Berwyn Health Dept.

Kathleen Clark, Health Dept., Winfield, W. Va., Public Health Nurse

Dorothy I. Fowler, Paris-Lamar County Health Unit, Paris, Tex., Senior Public Health Nurse

Mildred E. Gonyeau, C.P.H., 12 Olcott Ave., Bernardsville, N. J., Director, Visiting Nurse Association of Somerset Hills

Mary Matula, Minot-Ward Health Unit, Minot, N. D., Nursing Supervisor

Alma Kee McCracken, Box 707, Waynesville, N. C., Supervising Nurse, District Health Dept.

B. Elinor Suchy, R.N., 1621 South 61st Court, Cicero, Ill.

Juanita B. Williams, R.N., Box 1703, Pompano, Fla., Project Nurse, Florida Migratory Labor Health Assn.

Anastasia Wilson, R.N., S. Central Dist., Health Unit, Buhl, Ida., Public Health Nurse

Epidemiology Section

Howard P. Steiger, M.D., Christian County Health Dept., Hopkinsville, Ky., Venereal Disease Clinician, U. S. Public Health Service

Capt. Benjamin Zimmerman, M.C., Lovell General Hospital, Fort Devens, Mass., U. S. Army

Unaffiliated

William H. Clark, Jr., 3583 Life Sciences Bldg., Berkeley, Calif., Assoc. in Public Health, Univ. of California

Joy R. Dulaney, M.S., 220 Belvedere St., Lynchburg, Va.

Amelia L. Foote, 330 Willow St., New Haven, Conn., Student, Yale Dept. of Public Health

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MERIT SYSTEM CONSULTATIONS

PROVISIONS will be made at the 71st Annual Meeting of the American Public Health Association in St. Louis, October 27–30, for consultations between those concerned with the administration of merit system plans and the staff of the Association conducting the Merit System Study under the auspices of the Committee on Professional Education. Appointments for consultation on this subject with Dorothy Deming, R.N., may be made through the Association office in the Auditorium.

EMPLOYMENT SERVICE

The Association Employment Service seeks to bring to the attention of appointing officers the names of qualified public health personnel and to act as a clearinghouse on employment. This is a service of the Association conducted without expense to the employer or employee.

From the registry of persons available, selected announcements are published from time to time. Appointing officers may obtain lists of all registrants on request.

Address all correspondence to the Employment Service, American Public Health Association, 1790 Broadway, New York, N. Y.

U. S. CIVIL SERVICE COMMISSION

The Commission has announced again its need for public health nursing consultants in war work. The new announcement now provides for 5 grades and for appointments in the Children's Bureau, Department of Labor, U. S. Public Health Service, and Federal Security Agency. Salaries range from $2,600 to $5,600 a year. No age limits have been set. Positions exist both in the United States and foreign countries. War service appointments will be made to extend generally for the duration of the war and no longer than 6 months afterward. Duties are to carry out, in accordance with the rank of the position, nursing or nursing education programs; and to act in advisory capacity to Federal agencies, or to State, County, and municipal organizations.

There will be no written test, qualifications being judged solely from review of experience, education, and training of applicants. Persons applying must have completed a 4 year course in a recognized college and 1 year's special program of study in public health nursing approved by the National Organization for Public Health Nursing; must also have graduated from an accredited school of nursing affiliated with a hospital having a daily average of 100 or more bed patients; be registered nurses in a state or territory of the United States or the District of Columbia, and have had appropriate general public health nursing supervisory experience. Additional credit given for completion of approved college course in statistical analysis, public health nursing, supervision, social hygiene, tuberculosis control and maternity, pediatric or orthopedic nursing; also for certain appropriate experience as instructor, consultant, or investigator.

For positions in Children's Bureau additional progressive experience in specialized fields of maternal or child health is required for the top grade and may be substituted for part of the general experience prescribed for the other grades.

Applications must be filed with the U. S. Civil Service Commission, Washington, D. C., and will be accepted until the needs of the service have been met. Forms may be obtained direct from the Commission or at any first or second class post office.

Merit System Council, Oregon State Board of Health and Crippled Children's Division, has announced merit examinations in practically all professional public health fields, including Health Officers, Nurses, Sanitary Engineers, Laboratory Workers, Vital Statisticians, Consultants in the fields of Health Education, Hearing and Vision, Nutrition, Oral Health and Physiotherapy. Two clerical positions, Fiscal Worker and Administrative Clerk are included in this list as is also the position of Merit System Personnel Technician.

Interested persons may get full particulars regarding the positions and examinations by writing H. J. Sears, Merit System Supervisor, P. O. Box 88, Portland, Ore.

The Indiana State Personnel Division, 141 South Meridian Street, Indianapolis, announces that applications may be filed at any time until further notice for the following positions:

Orthopedic Nursing Consultant I (women only)	$150–200 mo.
Physician I (General)	165–250 mo.
Physician II (General)	250–325 mo.
Physician II (Tuberculosis)	250–325 mo.
Physician I (Psychiatric)	185–265 mo.
Physician II (Psychiatric)	250–325 mo.
Local Public Health Director	300–360 mo.

The California State Personnel Board has announced that applications will be received from citizens throughout the United States for the position of public health nurse in the State Department of Public Health, entrance salary $150 a month.

Applicant must have license as registered nurse in California and certificate as public health nurse in that state, must have completed course in public health nursing at recognized university. Candidates from other states must submit evidence of application for license and certificate in California.

Applications must be filed by Octo-

ber 1. Forms and information may be obtained from California State Personnel Board office, 1015 L Street, Sacramento, Calif.

POSITIONS AVAILABLE

Physician with either public health training or experience in local health department administration to serve as health director in a county health department in mid-western state. Salary $4,000 and $500 travel (flat rate). Well established department with offices in attractive little city of 10,000. Write **Box T,** Employment Service, A.P.H.A.

Western state department of health will consider applications from physicians to fill four existing vacancies among county health officers, one vacancy in venereal disease control and positions as laboratory technicians. Write **Box S,** Employment Service, A.P.H.A.

County Public Health Nurses for New Mexico. Must have 4 months' postgraduate instruction under one of the recognized public health nursing courses and 1 year's experience. Must drive and have a car. Address inquiry to State Health Department, Santa Fe, N. M.

PUBLIC HEALTH ENGINEER

Responsible professional public health engineering involving field investigations and office studies in the application of sanitary measures. The more difficult engineering and sanitation field surveys include supervision over public water supplies, sewerage systems and sewage treatment plants and review of plans for same, and promotion and supervision of sanitation programs. Minimum qualifications: Training and experience equivalent to 3 years' civil engineering experience, including 2 years in public health or sanitary engineering; *or* completion of an academic year of graduate study and a year's experience in sanitary or public health engineering; *and* graduation from a college of recognized standing with a major course in civil or sanitary engineering. The salary range is $205 to $250 per month depending upon experience. Apply **Box E,** Employment Service, A.P.H.A.

OTHER VACANCIES

Southwestern state health department seeks 2 physicians for assignment to district health units, personally to conduct several small venereal disease clinics on a rotating schedule. Experience preferred but not required. Salary $3,000, plus actual travel allowance not to exceed $1,200. Write **Box V,** Employment Service, A.P.H.A.

Wanted: Nurse for county health work. Salary $1,800 per year with travel allowance (additional) of $500 per year. Address District Health Department 2, West Branch, Mich.

Wanted: Supervisor of generalized public health nursing staff of 6 to 8 nurses. Beginning salary $175 per month, with opportunity for increase to $220 and travel expenses. Must be high school graduate, graduate of hospital of 100 beds, and must have at least 1 year's postgraduate study in public health nursing at a recognized institution, and 2 years' experience in general public health nursing under qualified supervision. Apply **Box L,** Employment Service, A.P.H.A.

The New Mexico State Department of Public Health will consider applications for the position of obstetrical consultant, Maternal and Child Health Division. Address inquiries to the State Department of Public Health, Santa Fe, N. M.

POSITIONS WANTED

ADMINISTRATIVE

Teaching or administrative position desired by physician, aged 48. Experienced teacher in preventive medicine and public health, now employed at prominent medical school; 20 years' experience in municipal health administration and epidemiology. **A-491**

Physician, B.S., M.D., and M.S.P.H., University of Michigan, aged 35, experienced city-county health administration and as director university student health service. Will consider permanent responsible position offering good income. **A-492**

Physician with 25 years' full-time experience in public health administration is available for immediate appointment. Moderately hard of hearing; otherwise fully able. Salary $4,500 or better. **A-497**

Physician, M.D., C.P.H., aged 47, seeks position in administrative work. Experienced in venereal disease control and industrial medicine. **A-485**

Physician, aged 47, M.D., Creighton University, M.S.P.H., Michigan, experienced in school health and as director of county health unit, seeks position as ad-

ministrator in state or local health department. **A-498**

Physician, aged 37, M.D., McGill, D.P.H., Toronto, experienced as health officer and director of public health training, seeks position in administrative work. **A-499**

WOMEN PHYSICIANS TRAINED IN PUBLIC HEALTH

Woman, aged 34, M.D., University of Basle, Switzerland, M.S.P.H., DeLamar Institute, Columbia University. U. S. citizen. Excellent references. Especially interested in industrial hygiene. **A-493**

Woman, aged 41, M.D., Columbia University, M.S.P.H., DeLamar Institute, experienced in epidemiology and research, seeks position offering administration experience. **A-494**

Woman physician, aged 48, M.D., University of Vienna. Excellent European pediatric experience. Seeks position in pediatrics, administration or statistical research. **A-495.**

Woman physician, M.D., Rush, M.P.H., Michigan, 13 years' experience in school medical service and administrative county health unit, seeks administrative position. New York area preferred. **A-500**

HEALTH EDUCATION

Woman with master's degree in health education, 12 years' successful experience in public school and college teaching, administration and research. Will consider position in normal school, public schools, or in official or nonofficial health agencies. Prefers South or East. Available at once. **H-501**

LABORATORY

Bacteriologist, young man 28, with B.S. in industrial science, experienced in newspaper work, salesmanship and now employed in state department of health laboratory, seeks position as bacteriologist or doing promotional work of public health nature. **L-465**

MISCELLANEOUS

Veterinary Doctor, M.P.H., University of Pennsylvania, aged 27, with 2 years of practice, seeks position in food, meat, milk or livestock sanitation with state or local health department. Also interested in teaching position with research facilities. **M-451**

Public Health Nurse with M.A. degree wishes position in health supervision and teaching in college or public school. West preferred. **M-452**

Administrative Assistant or Health Educator, woman, M.A., 10 years' experience in health agency offices; 7 years' teaching experience, writer on health and other subjects, experienced in independent research, some training in social work, some hospital experience. **M-453**

Advertisement

Opportunities Available

WANTED—(a) Supervisor; county department of health; competent executive required; central location. (b) College nurse; small infirmary; student health experience desirable; Pacific Northwest. (c) Student health nurse; public health background required; young woman's college; South. (d) Instructor in and supervisor of outpatient maternity nursing; university hospital; baccalaureate degree and 3 years' public health experience required; faculty appointment; most desirable location. (e) Public health nurse; degree or public health certificate required; $1,800 to $2,200. (f) Health supervisor; degree and public health experience required; duties consist of supervising health program of student and graduate staff; large hospital; approximately 170 students, 135 graduates; East. (g) Public health nurse; opportunity to become skilled in rural public health nursing; generalized program; Pacific Northwest. (h) Instructor in public health nursing; university medical center; East. (i) School nurse; Chicago area. Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

WANTED—(a) County health officer; woman eligible; South. (b) Physician for field position; woman eligible; state department of health; should be effective public speaker; will provide health training after year or so if not trained; Midwest. (c) Student health physician; well organized service; 640 students, 50 faculty; Midwest. (d) City-county health officer; college and industrial town of 26,000; venereal disease clinic operated in connection with public health department; excellent opportunity for developing department; Midwest. (e) County health officer; California. (f) Physician to head department of health and physical education; 900 students; town of 10,000; Midwest. (g) Young woman physician to joint student health department; young women's college; five physicians on staff; East. Medical Bureau (Burneice Larson, Director), Palmolive Building, Chicago.

Situations Wanted

Dentist who has specialized in public health is available; D.D.S., university medical school; several years' private practice; year of postgraduate training in public health hygiene with special emphasis on public health dentistry for which he received degree of M.S.P.H.; several years, state department of health; for further information, please write Burneice Larson, Director, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

THE BRITISH SCENE 1942

Charles Porter, M.D., Honorary Fellow, American Public Health Association, Formerly Medical Officer of Health, St. Marylebone, London

CIVIL defense, which at one time promised to absorb all the energies of all health officers in the United Kingdom (compelling them to organize the evacuating or the reception of evacuees; to perfect arrangements at first aid posts, air raid shelters, gas decontamination stations, and mortuaries; to muster forces of ambulance drivers, etc.), has now settled into place and the routine of public health is coming back into its own again. This pleases most of the service though, as nearly every health officer's annual report tells, staffs are but skeleton and it is only by efforts more or less superhuman that the normal items receive adequate attention.

It is not only staffs that are skeleton. Annual health reports themselves, at the request first of the Ministry of Health and more recently of the Paper Controller, have shrunk and shrunk until they are merely bare bones picked clean of everything that looks like information to the enemy. Very interestingly, and unexpectedly also, the figures in general are extraordinarily good. In spite of all the population have had to suffer at the hands of the enemy; in spite of domestic and what may be described as "domiciliary" upsets, a remarkable toughness and resistance have been shown by people of all ages and all ranks. The infants, for example, whether in the reception areas, where they should have been, or in their own homes, from which in spite of persuasion they have not been evacuated or to which against all advice they have been returned, have adapted themselves to conditions and have shown no increased mortality or morbidity. In very many cases indeed officers have claimed record low rates in the war years. For England and Wales the infant mortality rate in the March quarter—always, of course, the most deadly in infancy—at 61 per 1,000 births, was the lowest ever recorded for that period.

Not only so; defying what appeared to be a particularly trying winter, babies arrived in larger numbers than for many years to give a birth rate of 15.3. And, having arrived, the babies found themselves in spite of the war or rather perhaps on account of it, in a land flowing, if not with milk and honey, with milk and black-currant juice and rose-hip syrup. Also for them there was a priority of claim on oranges and other things unobtainable by their seniors. Possibly as a drawback there was a chance that their mothers engaged in war work had to leave them for some hours each day. To make up for this, however, nurseries in plenty were provided where care and attention and affection entirely motherly were at their disposal. On the whole, therefore, it was not so bad a thing to be a wartime baby as might be supposed.

The school children and the preschool children also have not found themselves too badly off. Certain fears on their account were of course entertained. It was thought, for example, that infectious disease rates would go up. Dread on this account, however, has proved to be almost unfounded. More interesting still, over and over

again in areas where enemy activity has been marked, it is recorded of the children that close examination has failed to reveal evidence of mental or physical disturbance. Frequently also it is noted that nutrition has not suffered noticeably either. One condition that has assumed proportions causing anxiety amongst adults as well as children is scabies. To this, and methods of dealing with it close attention is being given.

Because of fear of typhus fever, a disease from which this country for long has been free, lice have come to assume even more importance than usual. In most areas active steps have been taken to prevent infestation in air raid shelters and to provide for disinfestation if necessary. In addition immunization against the infection is on offer and teams consisting of medical and other officers have been formed and are being trained to deal with the disease should it appear.

Mention may also be made of the fact that both in England and Scotland the big drive initiated some months ago to induce parents to take advantage of the immunizing procedure in the case of diphtheria has begun to show results. In Scotland particularly these have been striking. Here reports show that no fewer than two-thirds of the child population have been dealt with and that, whereas amongst the immunized there was one death only, amongst the non-immunized during the same period no fewer than 418 deaths occurred.

Not unexpectedly—having regard to what happened in the war of 1914–1918—tuberculosis has shown a tendency to increase, especially in the case of women. Curiously enough, however, there has been an increase in the case of children under 10. In this group in England and Wales the deaths in 1940 exceeded those in 1939 by over 750, nearly 500 being due to meningitis.

The need for getting together for the purpose of discussing such occurrences and the steps that could and should be taken to deal with them has been greatly felt by the health service. Congresses and conventions on pre-war lines being out of the question, there was a falling back upon area and branch conferences and meetings. By reviving the so-called "Sessional Meetings" which had been abandoned at the outbreak of war, the Royal Sanitary Institute has rendered most valuable aid in this connection. These meetings in the ordinary way are held at intervals of six or eight weeks at various centers; one or two perhaps in London, the others, at the invitation of the municipality, in places such as Newcastle, Cardiff, Portsmouth, etc. The meetings extend over one or two days—Friday and Saturday, or Saturday alone. They prove very attractive, authorities in surrounding districts sending two or more of their number with the health officers to take part in and report upon the proceedings.

Though there is excellent reason for meetings of this sort, the meeting habit as a matter of fact has shown a tendency to increase. Apart from the Government which, of necessity, must give consideration to what might and should happen after the war is over, all kinds of bodies seem to have felt it incumbent upon them to go into questions affecting "Postwar reconstruction." After the war of 1914–1918 heroes, though promised homes fit to live in, did not actually receive them. By getting down to it early, bodies, official and nonofficial, have revealed a determination to achieve better results than those that came after 1918. As a matter of fact these better results will have to be achieved. Apart altogether from construction there is, as many of our American colleagues have seen, very much in the shape of reconstruction to be done. In one district alone there are 32,000 houses that will have to be recon-

structed or replaced, that being the number, out of a total of 36,000, that were damaged, badly damaged, or demolished.

In spite of such things, however, the people carry on bravely and, as is the habit here, even gaily. Indeed, in spite of the many sometimes agonizing blows received, there is an astonishing amount of gaiety apparent. Notoriously, of course, the Britisher grumbles, but so very much of it has something comic, even witty, about it, and rarely is resentment shown.

Rationing and queues and shortages, though a nuisance, are regarded as inevitable, but while there is admiration for the ingenuity of those responsible for the arrangements, for the black marketers and the racketeers, shopkeepers who enjoy saying "no," and restaurateurs, who reduce portions and raise prices, there is nothing but execration.

That the theaters and performances and shows begin and end at hours that make it necessary to eat too late or too early does not seem to affect attendances much. Also though we feel that by depriving us of the railings around our gardens, squares, and parks, the authorities have struck a shrewd blow at our cherished exclusiveness and love of privacy, we put up with it and keep on digging for victory and waging unceasing warfare against the various slugs, bugs, and beetles that appear to imagine that it is their victory we are digging for.

The fact of the matter is we are all learning the art of "make do" and to appreciate as a certain author points out, that "comfort and discomfort are comparative terms and anything is more comfortable than it might be."

In medical circles what is found rather difficult is the shortage of personnel. American helpers as they arrive seem to be entirely absorbed and become just part of the service, and the call for more continues to be made. In the public health service, on the medical side, the shortage is acute and rapidly becomes worse. Quite early London University School of Hygiene abandoned courses of instruction and other schools have followed suit. That the step was justified is shown by the smallness of the number of entries for the examination for the special diploma.

Subordinate ranks are affected also but comparatively less. Entrants for the health visitors' certificate are fewer than normal but the numbers continue fairly good.

In the case of sanitary inspectors, on account of calling up, staffs certainly have been depleted and the numbers at present taking the examination and qualification one feels cannot entirely compensate. What is to be done to meet the big demand when the war ends is a question that is receiving very serious consideration. In the case of the sanitary inspector, the Royal Sanitary Institute has a scheme in preparation. The situation vis-a-vis the health visitor will also require attention and the matter no doubt is under consideration.

FELLOWSHIPS IN MEDICINE AND PUBLIC HEALTH OFFERED BY THE COMMONWEALTH FUND OF NEW YORK THROUGH THE PAN AMERICAN SANITARY BUREAU

THE Commonwealth Fund of New York, a philanthropic foundation established in 1918 by the late Mrs. Stephen V. Harkness, has announced that it is offering through the Pan American Sanitary Bureau fifteen fellowships for one year's study of public health subjects or postgraduate medical courses to properly qualified persons who are citizens of the other American republics. Fellowships in public health will be open to physicians, sanitary officers, technicians, public health nurses, etc. These fellows will be selected through a system of coöperation with medical and health authorities of the different countries concerned, and whenever deemed advisable they will be interviewed by traveling representatives of the Pan American Sanitary Bureau. Each fellowship will provide living allowances while the holder is in the United States, travel costs, and tuition. Knowledge of the English language will be among the requirements, and also the possession of certain specific qualifications.

The Pan American Sanitary Bureau, the international health agency of the American republics, has been for some time the recognized clearing house for medical and public health fellowships in the United States, nearly 100 Latin Americans now being in the United States under its auspices.

Application blanks giving complete information will be available through the Commonwealth Fund, 41 East 57th Street, New York, N. Y., the Pan American Sanitary Bureau, Washington, D. C.; or chiefs of American Missions in Latin America.

A CHILDREN'S CHARTER IN WAR TIME

Leonard W. Mayo, Chairman of the Children's Bureau Commission on Children in War Time, reporting recently to the Commission, announced a joint Committee on Evacuation of Children established by the Director of the Office of Civilian Defense and the Director of Defense, Health and Welfare Services. Dean Landis, Director of the OCD, is to serve as Chairman and Martha M. Eliot, M.D., has been designated by the Office of Defense, Health and Welfare Services, to serve as Secretary. The joint committee includes in its membership representatives of the Children's Bureau, U. S. Department of Labor, and of the Office of Education, the Public Health Service, and the Social Security Board of the Federal Security Agency.

It has been agreed that the OCD, in coöperation with military authorities, has the primary responsibility of formulating and executing plans for the evacuation of civilians and that it is the function of the ODHWS to provide for the health, welfare, and education of evacuees.

Among more than 100,000 Japanese aliens and American citizens of Japanese ancestry who have been moved from Pacific Coast military areas under orders of the Secretary of War, it has been found that more than one-quarter of the evacuees are second and third generation children under 15 years of age who are American born citizens.

According to Dr. Mayo there are still many problems to be settled, such as those relating to the relief of congestion through the construction of more adequate housing facilities, the provision of opportunity for self-support, the improvement of facilities for family life and the provision of health and welfare

services, schools and other essential community activities.

According to the report to the commission, there are in 33 states and territories no less than 325 military and industrial areas where urgent health needs of mothers and children are not being met.

Upon recommendation of the state health officers, the Children's Bureau is reserving $198,000 of the Maternal and Child Health Fund for 1943 as available for grants to the states for providing medical service and hospitalization for the obstetric and pediatric care of wives and infants of men in the military services, according to Dr. Mayo.

INDUSTRIAL HYGIENE PROGRAM

The publication has been announced by the Division of Industrial Hygiene, National Institute of Health, U. S. Public Health Service, Bethesda, Md., of an outline of an industrial hygiene program for use in industry. Chapters include the medical service, the engineering and safety service, welfare services and medical care for non-occupational disability. The pre-placement examination, night work in rotating shift problems, better nutrition in the plant, and health and safety education for workers are also covered. Copies may be secured from the Division of Industrial Hygiene at the National Institute of Health.

INDUSTRIAL HYGIENE FOR FEDERAL EMPLOYEES

The Division of Industrial Hygiene, National Institute of Health, at the request of the Federal Council of Personnel Administration, has completed a survey of the dispensaries and hygiene services in federal departments located in Washington, D. C. For the most part, these dispensaries are established and operated by the departments and bureaus concerned. Of the 85 dispensaries employing 155 nurses it was found that not more than 20 were under the supervision of a physician. In no government agency was there found a comprehensive program of environmental and personal hygiene and preventive medicine such as is recommended for private industry. The findings were forwarded by the Surgeon General of the Public Health Service to the Council on Personnel Administration in June. The recommendations included a good preplacement examination, including a chest x-ray, tests for syphilis, urinalysis, and other laboratory studies as indicated, treatment of minor medical emergencies, psychiatric consultation, nutrition consultation, elimination of environmental hazards, systematic reporting of absenteeism and the promotion of health education.

BELA SCHICK LECTURES

Science announces that, in honor of Dr. Bela Schick who is retiring after serving for 19 years as head of the Department of Pediatrics at Mt. Sinai Hospital, New York, N. Y., a fund of $2,000 has been raised by his pupils, associates, and friends to establish the Bela Schick lectures in his honor.

1941 UNITED STATES DEATH RATES

The Bureau of the Census, Washington, has announced that the lowest death rate in the history of the United States registration states was recorded in 1941. The provisional figures show a crude death rate of 10.5 per 1,000 population. The 1940 rate was 10.8, the figure for 1938 and 1939 being 10.6. There were 21,362 fewer deaths in 1941 than in 1940. According to the report, most of the decrease occurred in the rural areas, with leading declines in the District of Columbia, Idaho, and Vermont. The greatest increases in death rates for individual states were in Arizona and Virginia. The total number of deaths for the entire nation for 1941 was 1,395,507.

U. S. INDIAN MEDICAL SERVICE CURTAILED

The Commissioner of Indian Affairs, Washington, has announced that the medical service available for the Navajos will have to be curtailed as a part of the retrenchment growing out of reductions in the appropriations for the work for Indians throughout the country of $13,000,000. A cut of more than half a million dollars in the budget for the Navajo Reservation will result in the closing of two hospitals at Leupp, Ariz., and Toadlena, N. M.

The position of Medical Director of the Navajo area will be abolished, effective August 15, thus releasing W. W. Peter, M.D., Dr.P.H., for service elsewhere. For the past 8 years Dr. Peter has had supervision of nine hospitals and three tuberculosis sanatoria as well as the oversight of a public health program for 53,000 Navajos. The reason for the present retrenchment is given as war necessity.

CALIFORNIA SOCIAL HYGIENE ASSOCIATION

The California Social Hygiene Association, San Franciso, has announced the appointment of Lawrence Arnstein as Executive Secretary with offices at 45 Second Street, San Francisco, in coöperation with the California Tuberculosis Association. Mr. Arnstein, with long experience in the business field, has for nearly 30 years been a member of the San Francisco Board of Health.

A coöperative plan between the San Francisco City and County authorities, the State of California, and the U. S. Public Health Service, looks toward the development of a so-called "amateur diversion program" which aims at the rehabilitation of younger prostitutes. Psychiatrists connected with the project include Dr. Ernest Lion, Dr. Karl Bowman of the University of California, and others. The California State Board of Health has provided funds to equip a floor over the venereal disease clinic which is expected to be in operation by the first of September with the services of two psychiatric social workers. Active contacts are under way with labor unions in coöperation with the San Francisco Health Department, and an educational program has been begun.

Among the Board of Directors of the California Social Hygiene Association specially interested in this project are Ray Lyman Wilbur, M.D., President of Stanford University; Walter H. Brown, M.D., Stanford University; Roscoe Chandler, M.D., Dean of Medicine, Stanford University; J. C. Geiger, M.D.; San Francisco Director of Public Health; W. Ford Higby, Secretary of California Tuberculosis Association; Malcolm F. Merrill, M.D., Director of Venereal Disease Control, State Department of Health; Karl F. Meyer, Ph.D., Hooper Foundation, University of California; Langley Porter, M.D., formerly Dean, University of California Medical School; Milton Rose, M.D., Dr.P.H., Medical Director, American Red Cross, Western Division, San Francisco; Chester Rowell, Editor, *San Francisco Chronicle;* William P. Shepard, M.D., Metropolitan Life Insurance Company, San Francisco; Charles Edward Smith, M.D., Professor of Public Health, Stanford University.

DR. HANSON BECOMES FLORIDA STATE HEALTH OFFICER

Governor Spessard L. Holland of Tallahassee has announced the appointment, effective in July, of Henry Hanson, M.D., as State Health Officer for the Florida State Board of Health, with offices in Jacksonville.

Dr. Hanson has for the last several years been a staff member of the Pan American Sanitary Bureau, assigned to various South American countries. He previously served a term as health officer of Florida.

INCUBATOR PLANS AVAILABLE

The Children's Bureau has available a new supply of plans for building two types of incubators and a carrier for premature babies, which were prepared by the National Youth Administration and the Children's Bureau.

If copies have been requested and have not been received an order sent now to the Children's Bureau, U. S. Department of Labor, Washington, D. C., will be filled promptly.

AWARD OF THE GEIGER MEDAL AT TULANE

The Geiger Medal for an outstanding thesis in the field of public health and sanitation has been awarded to Grace L. Ivanhoe, M.S., for her thesis on "Studies on the Transmission of Amebiasis in a Children's Home in New Orleans."

According to Dr. Ernest Carroll Faust, Professor of Parasitology in the Department of Tropical Medicine at Tulane, the problem involved the epidemiology of amebiasis in an infant home where there had been for more than 10 years a high incidence of amebiasis.

Attempts to eradicate the disease by therapeutic procedures alone had been a complete failure. An intensive study of the contacts of the children was undertaken and the particular dormitory was isolated where the children acquired their infection. Parasites were found widespread in their environment, on clothing, play objects, benches, floors, the water of their wading pool, and on clothing which had been laundered without boiling. Success followed after sterilization of the entire premises with live steam and routine use of antiamebic therapy.

The Geiger Medal is an award presented to Tulane University, New Orleans, La., by Dr. J. C. Geiger, Health Officer of the City and County of San Francisco.

DR. STEICHEN JOINS MERIT SYSTEM STAFF

William P. Shepard, M.D., Chairman of the Committee on Professional Education of the American Public Health Association, has announced the appointment of Mary Steichen, M.D., M.S.P.H., as Subject Matter Consultant in Public Health Practice to the Subcommittee on Merit Systems of which George H. Ramsey, M.D., Dr.P.H., is Chairman. Dr. Steichen, who is a graduate in medicine of the University of Rochester, and in public health of the DeLamar Institute of Public Health, Columbia University, has been health officer-in-training under the New York City Department of Health for 2 years. She will aid in the development of tests in various public health fields, supplementing the work in public health nursing carried on by Dorothy Deming, R.N., and the test construction project under Cecil Brolyer.

RESEARCH IN NUTRITION

The Nutrition Foundation, Inc., New York, N. Y., has announced that the research projects approved by the Board in 1942 include the following having a direct relationship to public health: methods for the detection of clinical vitamin deficiencies; quantitative relations of vitamin A intake to bodily store and well-being at different ages; relation of nutrition to dental caries in the monkey; the carotene and vitamin A content of market butters; conservation of vitamins and other nutritive values in dehydrated vegetables; the amino acid requirements of man; survey of the ascorbic acid content of Ontario-grown fruits and vegetables; nutritional deficiencies in the Atlantic region; relation of nutrition to cellular metabolism, with special reference to rheumatic fever and chemotherapy; factors which may alter calcium utilization by the adult man; influence of dietary factors on the healing of bone fractures.

Other projects that primarily advance the frontiers of the science of nutrition were announced as follows: development of bioassays for vitamins and amino acids; thiamin analysis and stability in cereal products; nature and content of pro-vitamin A pigments and content of ascorbic acid in tomatoes; studies of the vitamin B complex with the mouse as an experimental animal; biotin (vitamin H) metabolism in man; protein and vitamin interrelationships; the nutritional significance of biologically available methyl groups for man and various animal species; vitamin content of important plant foods; synthesis and metabolism of nicotinic acid in the rat; fluoride and phosphate metabolism of bones and teeth; metabolic fate of choline; the amino acid content of vegetables; quantitative study of nutrients of mother's milk under specific or known dietary conditions at different states of lactation; copper-containing proteins and their relation to the destruction of specific nutrients; to support the work of the Food and Nutrition Board of the National Research Council in developing and applying the science of nutrition; publication of authoritative reviews.

PUBLIC HEALTH IN HAWAII

M. F. Haralson, M.D., Territorial Commissioner of Public Health, Honolulu, has reported that, " in the interest of public safety and for the good of all persons," it had been decided to require immunization against typhoid fever and smallpox in the civilian population of the entire Territory.

The first military order required the immunization of the rural civilian population residing in the northern section of the Island of Oahu. Subsequent orders extended the area until it embraced all of Oahu, including Honolulu and the outside islands. The orders required vaccination against typhoid and paratyphoid fever of all persons over the age of 3 years and the vaccination against smallpox of all persons over the age of 6 months unless such persons had been protected against the diseases since January 1, 1941. Provision was made for the exemption and deferral of those actually ill, infirm, aged, crippled, etc.

Immunization against diphtheria was not required by the terms of the military order but the procedure was strongly recommended by the health department.

This program was undertaken by the Board of Health, working in collaboration with the Office of the Department Surgeon, and advantage was taken of the fact that the entire civilian population of the territory had recently been enumerated and registered. Those over the age of 6 had been fingerprinted and issued identification certificates bearing personal data and a registration number. This fact provided a basis for planning and administering the immunization program, provided centers for immunization, permitted the calling in each day of an exact number of persons who could be handled at each center and the identification recorded.

According to Dr. Haralson's report it is believed that this is the first instance in the history of the United States in which compulsory vaccination for both typhoid fever and smallpox has been required of the entire population of a state or territory and it is believed that, for the first time, the vaccination status of every individual residing in a state or territory can be reported.

Dr. Haralson reported that coöperation was exceedingly satisfactory.

During the month of March, 1942, an outbreak of 74 cases of typhoid fever occurred in Honolulu, all but two of which were directly traceable to a cafeteria worker who was identified as a carrier.

ILLINOIS CONFERENCE ON PUBLIC HEALTH TO MEET IN ST. LOUIS

Dr. Roland R. Cross, the Director of the Illinois Department of Public Health, Springfield, has announced that, because the American Public Health Association is this year holding its Annual Meeting in nearby St. Louis, Mo., the Illinois Department of Public Health has arranged as a war measure to hold its 1942 State Conference on Public Health in connection with the national conclave, thus saving busy Illinois health workers the time, expense, and travel that would have been required to attend two separate meetings. All Illinois residents interested in the promotion of public health are invited to attend the state-sponsored Illinois Conference on Monday, October 26, scheduled as a joint meeting with the Illinois Public Health Association, an affiliated society of the American Public Health Association. The preliminary program for the conference includes addresses by Dr. Cross and by Dr. Huntington Williams, Commissioner of Health of Baltimore, Md., and Dr. Henry F. Vaughan, Dean of the School of Public Health, University of Michigan, Ann Arbor.

NATIONAL NURSING COUNCIL FOR WAR SERVICE

The National Nursing Council for War Service has published, with the approval of the Health and Medical Committee of the Office of Defense, Health and Welfare Services, and its Subcommittee on Nursing, and with the approval of the American Red Cross, a booklet entitled "Nurses, to the Colors!" which defines certain priorities in nursing to meet the war emergency.

According to this booklet, which has been released by Elmira B. Wickenden, Executive Secretary of the Council, nurses should serve with the armed forces if they are single, under 40, and are:

(1) doing private duty
(2) on a hospital's general staff
(3) a head nurse not essential for teaching or supervision
(4) a public health nurse not essential for maintaining minimum civilian health service in any given community
(5) in a non-nursing position
(6) an office nurse.

According to the Council, nurses should serve at home if they have positions:

(1) in a hospital which has a school of nursing as
  (a) administrator in a key position
  (b) instructor
  (c) supervisor
  (d) head nurse, in a position related to teaching or supervision
(2) in a hospital without a school of nursing, as
  (a) administrator
  (b) supervisor
(3) in a public health agency, as
  (a) administrator
  (b) teacher and supervisor
  (c) Staff nurse essential for maintaining minimum civilian health services in any given community
  (d) industrial nurse

Nurses who are eligible and wish to enter military service should enroll in the First Reserve of the American Red Cross Nursing Service for assignment to the Army Nurse Corps or the Navy Nurse Corps. Further information is available from the National Nursing Council for War Service, 1790 Broadway, New York, N. Y.

BUENOS AIRES SOCIETY FOR HISTORY OF MEDICINE

THE Society for the History of Medicine at Buenos Aires, Argentina, has elected as honorary members of the Society Esmond R. Long, M.D., F.A.P.H.A., Professor of Pathology at the University of Pennsylvania and Director of the laboratories at the Henry Phipps Institute, Philadelphia, and Henry E. Sigerist, M.D., Director of the Institute of the History of Medicine at Johns Hopkins University.

POLIOMYELITIS STUDY GRANT AWARDED TO JOHNS HOPKINS

The National Foundation for Infantile Paralysis, Inc., New York, N. Y., announced on July 13 that it had made a grant of $300,000 payable over a period of 5 years to the Johns Hopkins University, Baltimore, for the establishment of a Center for the Study of Infantile Paralysis and Related Viruses.

According to the Foundation there is a need for units in which all the problems of poliomyelitis can be studied on a comprehensive scale and on a long-time basis to supplement the separate research grants now provided by the Foundation in leading institutions throughout the country.

The work at the Center will be under the direction of Kenneth F. Maxcy, M.D., Dr.P.H., Professor of Epidemiology in the University School of Hygiene and Public Health, who will be assisted by a group of scientists, including Howard A. Howe, M.D., David Bodian, M.D., and Robert C. Mellors, a biochemist from Western Reserve University. It is expected that other appointments to the staff will be made.

Laboratory space and facilities have been provided and the new grant will permit the investigators to carry on studies in the field as well as in the laboratory as opportunities may be presented. The ultimate objective is said to be the attainment of a more complete understanding of the spread of the poliomyelitis virus, not only within the human body but in the community. The project will involve epidemiologists, biologists, serologists, neurologists, and chemists.

A.M.A. PROVIDES FOR OBSERVERS OF HEALTH EDUCATION WORK

W. W. Bauer, M.D., Director of the Bureau of Health Education, American Medical Association, Chicago, has announced that the Trustees of the American Medical Association have authorized the Bureau of Health Education to accept postgraduate students, not more than two at a time, for two weeks or less of observation, demonstration, and participation in health education work as conducted by the Bureau of Health Education. Students would have no fees or tuition to pay and would make their own arrangements for maintenance.

ARMY JAUNDICE TRACED TO YELLOW FEVER VACCINE

Secretary of War Stimson said in Washington on July 24 that between January 1 and July 4, 1942, 28,585 cases of jaundice had developed among Army men, apparently as the result of inoculation with yellow fever vaccine. There had been 62 deaths from jaundice, or a case fatality rate of one in 461 cases. He announced that the Surgeon General of the Army had made a change in the form of yellow fever vaccine now used with the hope that it will eliminate the difficulty.

According to Mr. Stimson, the peak of the epidemic was apparently reached during the week ending June 20, when 2,997 hospital cases were reported; 2,575 cases were reported for the week ending July 4. Of the total cases 24,057 occurred at home, the remainder abroad.

It was explained that, because of the long period of incubation following inoculation before the jaundice developed, it had been particularly difficult to study the outbreaks. Members of an Army commission investigating the disease have recently stated that the jaundice was traceable to only a few lots of the vaccine and that it was almost certainly not a form of yellow fever which, under present conditions, could spread from person to person. The possibility has been mentioned that an extraneous virus may have entered certain lots of the vaccine through the supposedly normal human serum which is a component of the finished product.

ILLINOIS ESTABLISHES THREE DEFENSE ZONE COUNTY HEALTH DEPARTMENTS

Dr. Roland R. Cross, Director of the Illinois Department of Public Health, has announced that, although Illinois has no law at present to enable all interested counties to provide adequate official county health services locally, state-subsidized full-time health departments, set up in defense zones under the emergency legislation now available, are already in action in three counties. The Lawrence County Health Department has been set up at Lawrenceville under Dr. D. F. Rawlings. The Lee County Health Unit has been set up at Dixon with Dr. A. L. Barbakoff, and the Williamson County Health Department headed by Dr. M. E. Cosand is established at Herrin.

In addition, Cook County, which is also a health defense area, has a full-time county health unit established in 1940 as a section of the County Bureau of Public Welfare and directed by Dr. E. A. Piszczek.

According to Dr. Cross, many of the remaining 17 counties which have been named as defense zones for public health purposes have expressed interest in developing effective local health services with state aid, and it is expected that a new defense zone health department may be opened in Will County shortly with Dr. C. A. Z. Sharp in charge. This leaves 81 Illinois counties still without power under existing law to set up county health services, there being 16 other defense counties now eligible for state aid.

MASSACHUSETTS COMMITTEE ON PUBLIC SAFETY

The Massachusetts Committee on Public Safety, which has headquarters at 18 Tremont Street, Boston, and of which J. W. Farley is Executive Director, has a Health Executive Committee of which Professor Curtis M. Hilliard of Simmons College is the Director. Other members include Manfred Bowditch, Ernest M. Morris, M.D., Sophie C. Nelson, R.N., Maurice E. Peters, D.M.D., Alton S. Pope, M.D., Arthur J. Strawson, Douglas A. Thom, M.D., James O. Wails, M.D., and Ruth White.

TUBERCULOSIS CONTROL AS A WAR MEASURE

To prevent an increase in tuberculosis deaths, such as occurred in all countries during the last World War, the Public Health Service has begun x-ray examinations of its entire staff including commissioned officers and Civil Service personnel, both at headquarters and field stations.

The examinations are being conducted by the Tuberculosis Control Unit of the States Relations Division in coöperation with the Division of Industrial Hygiene, National Institute of Health. Surgeon General Thomas Parran said in announcing the program: "The armed forces have already undertaken x-ray examination of all enlisted men entering the services. The next specific undertaking should be the examination of all industrial employees, and an annual follow-up in certain groups of workers—all if possible." He also recommended that the men in the armed forces be reëxamined at the end of the war, before they reënter civilian life. Personnel of the U. S. Public Health Service are to be reëamined annually during the duration of the emergency.

NURSERY CARE STUDY IN NEW YORK CITY

Mayor LaGuardia has announced that Leona Baumgartner, Ph.D., M.D., Director of the Bureau of Child Hygiene of the New York City Department of Health, has been designated to make a study of the existing facilities for nursery care in New York City. This is at the request of the Mayor's Committee for War Time Care of Children. Frank J. O'Brien, Associate

Superintendent of the Department of Education, is responsible for the standards for nursery schools.

NEW YORK STATE HEALTH OFFICERS ASSOCIATION

The New York State Health Officers Association at its meeting June 23 in Saratoga elected the following officers for the coming year:

President—William Runcie, M.D., Freeport.
First Vice-President—J. R. MacElroy, M.D., Jonesville.
Second Vice-President—G. E. Sanders, M.D., Dewey.
Third Vice-President—Burdge P. MacLean, M.D., Huntington.
Secretary—R. H. Wilcox, M.D., Tonawanda.
Treasurer—H. B. Doust, M.D., Syracuse.

NEW YORK STATE ASSOCIATION OF SCHOOL PHYSICIANS

At its meeting on June 22 in Saratoga, the New York State Association of School Physicians elected John E. Burke, M.D., Schenectady, to the office of President for the coming year.

Edgar Bieber, M.D., Dunkirk, was reelected *Vice-President*.

C. Adele Brown, M.D., Oswego, was reelected *Secretary-Treasurer*.

William E. Ayling, M.D., Syracuse, was elected a member of the Executive Committee as were Clarence A. Greenleaf, M.D., Olean, Lewis Wade Heizer, M.D., Watertown, and Michael Levitan, M.D., Rome.

PERSONALS

Central States

MAINE C. ANDERSEN, M.D., of Omaha, Neb., has been appointed Director of the Health Service at the University of Omaha, effective September 1. He succeeds JOHN C. SHARPE, M.D., of Omaha, resigned.

F. C. BEELMAN, M.D.,† formerly Director of the Division of Tuberculosis Control, and since October, 1941, acting Secretary and Executive Officer of the Kansas State Board of Health, Topeka, was appointed as Secretary and Executive Officer at the June 25 board meeting, taking the place of F. P. HELM, M.D.,† who was given leave of absence last fall for a year's postgraduate work in public health at the University of Michigan. Dr. Helm received his master's degree in June, was given a reserve commission as Surgeon in the U. S. Public Health Service, and has been detailed to the State of Texas as Deputy State Emergency Medical Service Chief, OCD.

CLAYTON C. BENJAMIN, M.D., M.S. P.H.† of Munsing, Mich., has been appointed in charge of the new County-City Health Unit, with headquarters in Ludington.

RICHARD F. BOYD, M.D., M.P.H.,* has been announced as Chief of the Division of Local Health Administration, by Roland R. Cross, M.D.,† Director of the Department of Public Health, State of Illinois, Springfield, effective July 1. Dr. Boyd has been serving as Acting Chief following the death of MARVIN F. HAYGOOD, M.D., M.P.H.,† who was to have taken office on July 1.

ERROL V. BRUMBAUGH, M.D., of Milwaukee, Wis., has been appointed Health Commissioner of West Allis, filling the vacancy that occurred when FRANK H. RUSSELL, M.D., of West Allis, resigned recently.

DAN H. CAMPBELL, PH.D., Assistant Professor of Immunology, Department of Bacteriology and Parasitology, Division of Biological Sciences, University of Chicago, has accepted an appointment at the California Institute of Technology, Pasadena, as Assistant Professor of Immunochemistry.

PAUL T. COOK, M.D., has been made District Health Officer of six counties with headquarters in Valley

* Fellow A.P.H.A.
† Member A.P.H.A.

City, N. D., succeeding ROBERT G. WHITE, M.D.,* who was transferred to Bismarck.

GERRY B. DUDLEY, M.D., of Charleston, Ill., has been appointed a member of the Board of Public Health advisers in the Illinois State Department of Public Health, succeeding CLIFFORD U. COLLINS, M.D., of Peoria, Chairman, who resigned.

LYMAN D. EATON, M.D., of Indianapolis, Ind., has been named Director of the District Health Unit at Princeton, covering Gibson, Pike, Posey, and Warrick Counties.

GREGORY L. ENDRES, M.D.† of Omaha, Neb., has been named Director of the newly created Dodge-Saunders Counties Health Unit.

F. K. HARDER, M.D., M.P.H.,* Assistant Commissioner of Health in Cincinnati, Ohio, has resigned to accept the position of Health Director in the City of Greensboro, N. C.

BARBARA A. HEWELL, M.D., Pediatric Coördinator of the Cincinnati Anti-Tuberculosis League, Cincinnati, Ohio, has resigned to become Specialist in Child Hygiene in the Division of Research in Child Development in the U. S. Children's Bureau, Washington, D. C.

H. L. HIEBERT, M.D., is the new Director of Tuberculosis Control for the Kansas State Board of Health, Topeka, taking the place of F. C. BEELMAN, M.D.,† who was appointed Secretary and Executive Officer of the department. Dr. Hiebert formerly was on the staff of the Minnesota State Tuberculosis Sanatorium.

FRANCIS R. HOLDEN, PH.D.,† has been appointed Industrial Hygienist on the staff of the Industrial Hygiene Foundation at the Mellon Institute, Pittsburgh, Pa. Following his graduation from Hobart College at the University of Cincinnati, Dr. Holden has been connected with the Industrial Health Conservancy Laboratories in Detroit, and the Safety Department of the Pittsburgh Plate Glass Company.

DR. DARLINGTON FRANK HOLTMAN, Instructor in Bacteriology at Ohio State University, has been appointed Assistant Professor of Bacteriology in the Western Reserve University School of Medicine, Cleveland. Dr. Holtman assumed his new duties on July 1.

GLENN V. HOUGH, M.D., of Milwaukee, Wis., has been appointed Medical Director of the Marathon County Health Unit, Wis., succeeding ERNEST NEWMAN, M.D.,† of Wausau, who has a similar position at Las Vegas, Nev.

NICHOLAS A. JAMES, M.D., of Tell City, Ind., is the new Health Officer of Perry County, Ky., it is reported.

EVERETT A. KING, M.D.,† formerly of Fort Wayne, Ind., now of the U. S. Public Health Service, has taken over the work of the Health Office in the Tri-County Unit composed of Hancock, Breckenridge, and Meade Counties, Kentucky.

FREDERICK P. KNAUF, M.D., of Kiel, Wis., has been appointed City Health Officer of Kiel, to fill the unexpired term of the late GEORGE MATHES, M.D., who resigned shortly before his death, February 19, after holding the position since 1900.

PAUL A. LINDQUIST, M.D., M.S.P.H.,† of Manistee, Mich., has resigned as Medical Director of the Mason-Manistee-Benzie County Health Unit, to accept a similar position of the new County-City Health Unit being established in Monroe County.

HOMER E. LINE, M.D., of Chili, Ind., has been appointed Health Officer of Miami County.

MILTON E. PARKER,* Manager of Production, Beatrice Creamery Company, Chicago, Ill., has been appointed

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Adviser to the Resources Division, Office of the Quartermaster General, War Department, Washington, D. C., on production and quality control of dairy products.

R. H. RIEDEL, M.D., Director of the Division of Venereal Disease Control, on leave of absence from the Kansas State Board of Health, Topeka, is on active duty with the Army, having been a reserve officer since 1928. He has a Captain's commission and is on duty at Camp Carson, Colorado Springs, Colo.

H. R. Ross, M.D.,† resigned his position as Director of the Child Hygiene Division of the Kansas State Board of Health, Topeka, and has been appointed as Medical Consultant to the department. FRED L. MAYES, M.D., Assistant Director of the Division, succeeds Dr. Ross.

HENRY C. SCHOLER, M.D., has been named Health Officer of Monmouth, Ill., succeeding JAMES W. FIROVED, M.D., who resigned to enter the medical corps of the Navy.

JOHN D. WINEBRENNER, M.D.,† of Princeton, Ind., has been named Director of the newly-created District Health Department No. 5, with offices in Columbus. The District includes Bartholomew, Johnson, Shelby, Jackson, and Decatur Counties.

Eastern States

GEORGE P. BERRY, M.D.,* Professor of Bacteriology and Assistant Dean of the University of Rochester School of Medicine, Rochester, N. Y., received one of the 9 fellowships awarded by the City of Rochester for distinguished service at special ceremonies on May 22.

G. DONALD BUCKNER, S.B.,† Health Officer of Needham, Mass., has been appointed Executive Secretary of the Southern Worcester County Health Association, Mass.

FRANK A. CALDERONE, M.D., M.P.H.,* has been appointed Secretary of the New York City Department of Health, having been District Health Officer of the lower East Side Health District, New York City, for several years.

HENRY D. CHADWICK, M.D.,* former Commissioner of Health, Massachusetts State Department of Public Health, has retired as Director of the Middlesex County Sanatorium and is now giving full time as Medical Director and Superintendent of the Cambridge Sanatorium, Cambridge, Mass. Dr. Chadwick was recently chosen President of the Massachusetts Tuberculosis League.

DR. RENÉ JULES DUBOS, member of the Rockefeller Institute for Medical Research, has been announced by Harvard University as the George Fabyan Professor of Comparative Pathology and Professor of Tropical Medicine at the Harvard Medical School, Boston. He succeeds DR. ERNEST E. TYZZER, who becomes Professor Emeritus.

DR. J. I. FEINMAN has been appointed a member of the teaching staff in Pharmacology, at the Philadelphia College of Pharmacy and Science, Philadelphia, Pa., as announced by Dr. Ivor Griffith, President of the College. Dr. Feinman, who graduated from the institution in 1928 and later received his medical degree, takes the place of DR. E. A. MULLEN, now on leave of absence and serving as Commander in the United States Navy.

ELIZABETH M. FINIGAN, Health Investigator for Institutions, Division of Communicable Diseases, New York State Department of Health, retired on May 1, after 29 years' service.

WILLIAM A. HOLLA, M.D.,† formerly Deputy Commissioner of Health in

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the Westchester County Department of Health, White Plains, N. Y., was appointed on July 28 as Commissioner of Health in the department, succeeding GEORGE H. RAMSEY, M.D., DR.P.H.,* who recently resigned for reasons of health. Dr. Holla has been a member of the county staff since 1930.

Western States

LEONARD A. DEWEY, M.D., C.P.H.,† of Seattle, Wash., Chief of the Division of Epidemiology and Venereal Disease Control, Washington State Department of Health, is on leave of absence to the U. S. Army. Dr. Dewey has been placed in charge of venereal disease control in the Eighth Corps Area, with headquarters in San Antonio, Tex.

WILLIAM A. POWELL, M.D.,† of Martinez, Calif., has been placed in charge of the administration of health affairs of the cities of Antioch, Calif., and Pittsburgh, Calif., recently transferred to the Contra Costa County Health Department. FRED P. NEVIUS, M.D., has been serving as Health Officer of Antioch, and GEORGE C. KELSO, M.D., as Health Officer of Pittsburgh. With the exception of the cities of Richmond and El Cerrito, nearly all of Contra Costa County is now under the jurisdiction of the county health unit.

Puerto Rico

EDUARDO GARRIDO MORALES, M.D., DR.P.H.,* who has been Commissioner of Health of Puerto Rico since 1933, retired as Commissioner on June 26, and on July 1 went on duty as Major in the Medical Corps, U. S. Army, at Fort Buchanan, San Juan, P. R. Dr. Garrido has been assigned a study of the malaria problem and is Medical Inspector of the camp. Dr. Garrido is currently a Vice President of the American Public Health Association.

CONFERENCES AND DATES

American Association for the Advancement of Science. New York, N. Y. December 28–January 2.

American Association of State Highway Officials. St. Louis, Mo. December 7–9.

American Chemical Society—National Chemical Exposition, National Industrial Chemical Conference. Sherman Hotel, Chicago, Ill. November 24–29.

American College of Surgeons—Clinical Congress. 32nd Annual. The 25th Annual Hospital Standardization Conference, sponsored by the College, will be held simultaneously. Stevens Hotel, Chicago, Ill. October 19–23.

American Congress of Physical Therapy—21st Annual Scientific and Clinical Session. Hotel William Penn, Pittsburgh, Pa. September 9–12.

American Dietetic Association—25th Annual Meeting. Hotel Statler, Detroit, Mich. October 19–22.

American Hospital Association. St. Louis, Mo. October 12–16.

American Library Association—Midwinter Conference. Chicago, Ill. December 28–31.

American Public Health Association—71st Annual Meeting. Headquarters, Municipal Auditorium, St. Louis, Mo. October 27–30.

American Public Works Association. Cleveland, Ohio. October 18–21.

American Society for Public Administration. Chicago, Ill. December 27–28 (tentative).

American Society of Civil Engineers—Fall Meeting. New England. October.

American Water Works Association—
Michigan Section—Park Place Hotel, Traverse City, Mich. September 9–11.
Rocky Mountain Section—Frontier Hotel Cheyenne, Wyo. September 17–18.
Western Pennsylvania Section—Roosevelt Hotel, Pittsburgh, Pa. September 18.
Minnesota Section—Lowrey Hotel, St. Paul, Minn. September 24–26.
Four States Section—Benjamin Franklin

Hotel, Philadelphia, Pa. October 7–9.
Southwest Section—Little Rock, Ark. October 12–14.
Kentucky-Tennessee Section—Irving Cobb Hotel, Paducah, Ky. October 19–21.
Wisconsin Section—Hotel Wausau, Wausau, Wis. October 20–21.
Missouri Valley Section—Coronado Hotel, St. Louis, Mo. October 22–24.
California Section—Hotel Oakland, Oakland, Calif. October 28–30.
North Carolina Section—Washington Duke Hotel, Durham, N. C. November 2–4.
Virginia Section—November 5–6.
Florida Section—Miami, Fla. November 6.

Biological Photographic Association — 12th Annual Convention. New York, N. Y., September 10–12.

Civil Service Assembly—Annual Conference. St. Paul Minn. October 1–3.

Conference on Venereal Disease Control Needs in War Time. (To be held under the auspices of the U. S. Public Health Service.) Hot Springs National Park, Ark. October 21–24.

Federation of Sewage Works Associations. Cleveland, Ohio. October 15–17.

Indiana State Medical Association — 93rd Annual Session. French Lick, Ind. September 29–October 1.

International Association of Milk Dealers. Peabody Hotel, Memphis, Tenn. October 22–24.

Michigan Public Health Association. Grand Rapids, Mich. November 11–13.

National Association of Public School Business Officials. Cleveland, Ohio. October 5–8.

National Association of Social Workers—Delegate Conference. October.

National Probation Association. Asheville, N. C. October 19–23.

National Recreation Association—War Recreation Congress. Netherland Plaza Hotel. Cincinnati, Ohio. September 28–October 2.

National Safety Council. Chicago, Ill. October 5–9.

New Mexico Public Health Association. Raton, N. M. October.

New York State Association of Milk Sanitarians—20th Annual Conference. DeWitt Clinton Hotel, Albany, N. Y. September 23–25.

New York State Association of Public Health Laboratories — Mid-year Meeting. State Laboratory, Albany, N. Y. November 6.

Tennessee Public Health Association. Nashville, Tenn. September.

Best Sellers in the Book Service for August

Standard Methods for the Examination of Water and Sewage. 8th ed. American Public Health Association..... $2.50

Standard Methods for the Examination of Dairy Products. 8th ed. American Public Health Association..... 3.00

Military Preventive Medicine. 3d ed. Lieut. Col. G. C. Dunham..... 3.25

Control of Communicable Diseases. Revised. American Public Health Association. 25

The Sanitary Inspector's Handbook. Henry H. Clay. 5th ed..... 5.75

Rural Health Practice. Harry S. Mustard..... 4.00

Municipal and Rural Sanitation. 2d ed. Victor M. Ehlers and Ernest H. Steel.. 4.00

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